COMPUTERWORLD

Speech recognition software has come a long way in 20 years, Gary H. Anthes reports. Now it's easier to integrate with back-office IT applications and smart enough to be downright conversational.
Page 23

PLANKTON ART

Speak Easy

Java Developers Aren't Buying Sun's Tools Pitch

Although JavaOne attendees showed interest in new offerings, Sun still has bottom-dweller status

BY CAROL SLIWA
SAN FRANCISCO

Sun Microsystems Inc. said attendance jumped to 14,000 at last week's JavaOne conference — an increase of 2,000 over last year's event and a sign that interest in the language and development platform Sun created nine years ago remains high.

Yet Sun continues to struggle in the commercial tools market, despite its cachet as the inventor of Java. Analysts place Sun among the bottom dwellers in the commercial Java tools market, estimating that it commands less than 10% of a market led by Borland Software Corp. and IBM.

Sun has high hopes that the

INSIDE
James Gosling discusses Sun's Java tools woes.
PAGE 45

new offerings it demonstrated and previewed at JavaOne — particularly its visually oriented Java Studio Creator — will spark a resurgence in interest in its tools products. But the company faces an uphill climb in changing perceptions within a developer community that has paid little attention to its commercial tools to date.

"I don't use any Sun products," said Scott Jensen, a software developer at Beneficial Life Insurance Co. in Salt Lake City and a user of JetBrains Inc.'s IntelliJ. "They created Java, and it gives them a marketing edge, but when it comes down to it, it's the competitiveness of the products that counts."
JavaOne, page 45

Appeals Court Ruling Silences Microsoft Antitrust Battlefield

Defeats last effort to force changes to OS; higher appeal doubtful

BY PATRICK THIBODEAU
WASHINGTON

Microsoft Corp. last week said it will finally be able to move forward, following a U.S. Court of Appeals decision that defeated a last stand to force the software giant to change Windows. The question for Microsoft's users and rivals is where that move forward is headed.

Massachusetts, the lone holdout state in the battle, can appeal to the Supreme Court. But there's a strong sense among people on both sides of the case that this historic fight is over.

The court ruling unanimously affirmed a settlement Microsoft reached in 2001 with the U.S. Department of Justice and eventually nearly all of the 20 states involved in the case at the time.

The six-year government case did have a positive impact on Microsoft's behavior,
Microsoft, page 16

MORE ONLINE
Microsoft pays $611 million in European Commission antitrust case:
QuickLink 47956
www.computerworld.com

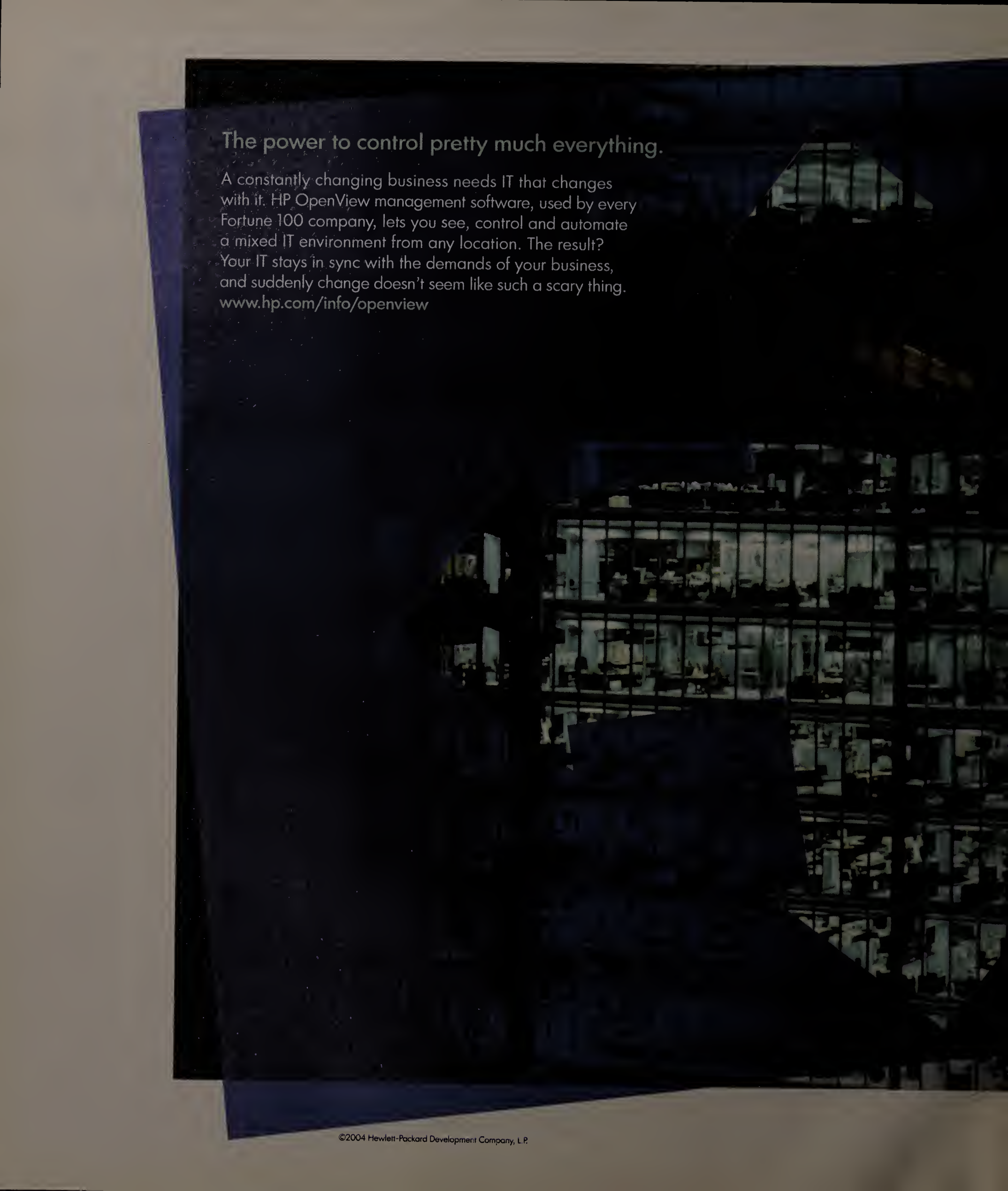## Real Estate Firm Mixes IT Management

BY MATT HAMBLEN
Lend Lease Corp., a global construction management and real estate investment firm based in Australia, plans to go live Sept. 1 with an IT overhaul that will combine its worldwide network, systems and security management operations at a data center in Atlanta.

Lend Lease is overhauling

40 core management processes, installing 16 software products from six vendors and doing nearly all the integration work in-house, according to John Miles, the company's chief security officer. The company is replacing some off-the-shelf management tools, but much of the software that's being installed will add all-new functionality, Miles said last week.

The yearlong project, which was dubbed HighRISE, was prompted by several hard real-
IT Overhaul, page 16

NEWSPAPER

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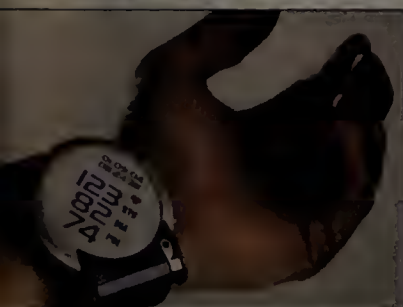
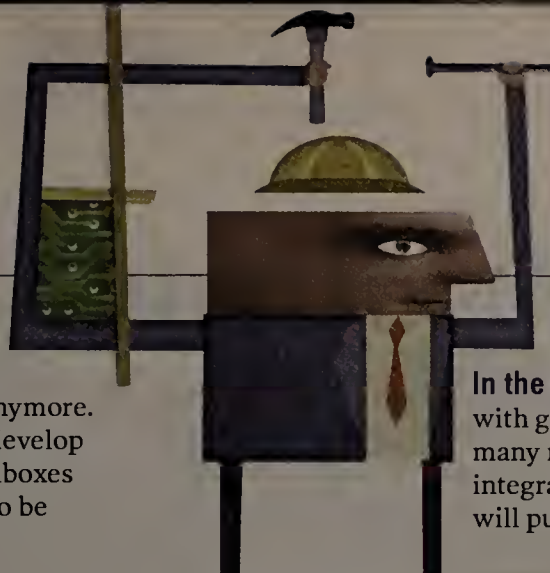**ca** Computer **Associates**®

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Big Blue Meets Inspector Gadget

In the Technology section: IBM's not so staid anymore. Its Gadget Lab is working with companies to develop high-tech gizmos like bathroom scales and pillboxes that transmit data to doctors. Nothing seems to be off-limits. **Page 25**

Building a Compliance Framework

In the Management section: The task of complying with government regulations is sucking up far too many resources. With no end in sight, CIOs who can integrate compliance into their corporate cultures will push their companies ahead of the pack. **Page 33**

ONLINE

WWW.COMPUTERWORLD.COM

Confessions of a War Driver

MOBILE/WIRELESS: A *Computerworld* editor takes up the wireless war-driving game to find unsecured networks. How tempted is he by the "sorry state of wireless security"?
◗ QuickLink 47881

Inside the Insider Threat

SECURITY: Mudge, security expert and chief scientist at Intrusic Inc., details some of the ways that malicious hackers can slip into computer networks undetected.
◗ QuickLink 47294

The IT Accounting Scam

DEVELOPMENT: Columnist Linda Hayes exposes a software development quality scam — and proposes a solution. ◗ QuickLink 47717

Storage on the Edge

STORAGE: Many organizations have more data stored on their network perimeters than in their data centers. CIOs need to learn the new realities of the "stor-edge" landscape, write Robert Galletta and Melanie Heintz, IT staff directors at the Federal Reserve Bank of New York. ◗ QuickLink 47764

Using OS X Server to Manage Clients

MACINTOSH: Columnist Ryan Faas offers advice for systems administrators on what to keep in mind when configuring a user environment for individuals or workgroups.
◗ QuickLink 47765

What's a QuickLink?

◗ Throughout each issue of *Computerworld*, you'll see five-digit QuickLink codes pointing to related content on our Web site. Also, at the end of each story, a QuickLink to that story online facilitates sharing it with colleagues. Just enter any of those codes into the Quick-Link box, which is at the top of every page on our site.

Time Running Out for E-voting Security Plan

Panel calls for independent oversight of voting systems, but it may be too late

BY DAN VERTON

STATE AND local jurisdictions must act immediately to ensure the security of the electronic voting systems that are to be used in the November presidential election, according to an IT security panel. But the panel's recommendations may well have come too late.

In a report released last week by the Brennan Center for Justice at the New York University School of Law and the Leadership Conference on Civil Rights, the panel outlined a strategy for certifying the security and reliability of touchscreen direct recording electronic (DRE) voting systems. The systems will be used in jurisdictions representing about 30% of registered voters in the upcoming presidential election.

While analysts in the security and elections communities praised the report, most agreed that it may have come too late for states and local jurisdictions to act upon.

Chief among the panel's eight recommendations is a call for elections officials to hire a well-qualified, independent security team to examine the potential for operational failures and malicious attacks against DRE voting systems. According to the report, such a team "must be free of any business relationships with any voting system vendors or designers" and must be granted unfettered access to all software code and configuration data.

The panel also recommended that all jurisdictions contract for independent "red team" exercises to uncover any hidden physical or electronic vulnerabilities in DRE systems. And it urged election officials to make public information about the level of cooperation received from DRE system vendors.

Site-specific security procedures and physical security also weighed heavily in the panel's report. For example, the experts urged jurisdictions to use "tamper tape" on all vulnerable hardware devices and to document strict procedures for system repairs.

Jim Adler, CEO of VoteHere Inc., a Bellevue, Wash.-based developer of electronic voting security technologies, said the recommendations are an accurate reflection of what must be done.

But many of the systems and procedures for the November election are either already in place or are now being deployed. "It's late," said Adler, who was interviewed by the panel for the report. "Where was this a year ago?"

Jeremy Epstein, senior director for product security at Fairfax, Va.-based WebMethods Inc., characterized the panel's report as a set of short-term recommendations that are "exactly on the mark."

Epstein said he believes the recommendations can be implemented in time for the election. But "over the longer term," he added, "the need is clearly there for voter-verified paper audit trails or perhaps some form of cryptographically protected voting." ○ 47931

A VOTE FOR PAPER TRAILS

Sharon Machlis says voters need to be able to trust e-voting systems. **See page 18**

3Com Hits Milestones but Seeks Path to Profitability

3COM CEO Bruce Claflin (left) greets Massachusetts Gov. Mitt Romney at last week's anniversary celebration.

MATT HAMBLEN
MARLBORO, MASS

Networking equipment vendor **3COM CORP.** last week marked its 25th year in business and the one-year anniversary of relocating its headquarters from California to Massachusetts. The celebration came as 3Com is trying to rebound from 17 straight quarterly losses and steep declines in its sales and head count.

Two weeks ago, 3Com reported that it lost $18.7 million in its fourth quarter and $349.3 million for all of fiscal 2004, which ended May 28. But fourth-quarter revenue was up 5% from the year-earlier period. During the anniversary ceremony at 3Com headquarters here, CEO Bruce Claflin called the revenue growth "a milestone in our turnaround efforts."

Massachusetts Gov. Mitt Romney, who also spoke at the event, praised 3Com for weathering the "perfect storm" generated in the IT industry by the dot-com bust and the post-9/11 economic doldrums.

Corporate Market Key

But 3Com's hoped-for turnaround has been a long time coming and still isn't assured, said Zeus Kerravala, an independent analyst based in Boston. Increasing its sales to large companies is vital, he added. For example, he noted that the 3Com VCX IP Telephony Solution is a high-quality switch but hasn't attracted many corporate customers since it was introduced for enterprise use a year ago.

"3Com needs to get more enterprise users, and the next 12 to 24 months will make the difference," Kerravala said.

Claflin agreed that 3Com must better market its products to corporate users. He took a few stabs at networking market leader Cisco Systems Inc., describing its treatment of users as "feudal." Cisco locks customers into its technology and then acts as the "lord of the manor over serfs tilling the fields," Claflin said.

3Com had revenue of $699 million in fiscal 2004, compared with $16.1 billion for Cisco in the first three quarters of its current fiscal year. Kerravala and other analysts said 3Com has to find corporate IT niches where it can compete effectively against Cisco. ○ 47937

VAX Users See the Writing on the Wall

Though still widely used and very reliable, DEC's legacy to IT is aging

BY PATRICK THIBODEAU

The VAX system at Triumph Components has been in use since about 1996, and information systems manager Dan Blackshear couldn't be happier with it. There's just one problem: He's got to scrap it.

The system is fast, works well with Windows and "fits into the modern environment very cleanly" at the El Cajon, Calif.-based aerospace parts maker, said Blackshear. "But it's a dinosaur, and eventually it has to go," he said.

It's been four years since the former Compaq Computer Corp. shipped the last new VAX, but Hewlett-Packard Co., which acquired Compaq, estimates that there are about 150,000 to 175,000 of the systems in use in the U.S.

IT managers interviewed about VAX and its OpenVMS operating system said the machines rarely fail. Geoffrey Ive manages 150 VAX systems, including one bought in 1986 and others purchased in 1990 and 1995 by his South African company, Eskom Transmission. Some of the systems have run for more than six years without a reboot. Reliability is "extremely high," he said.
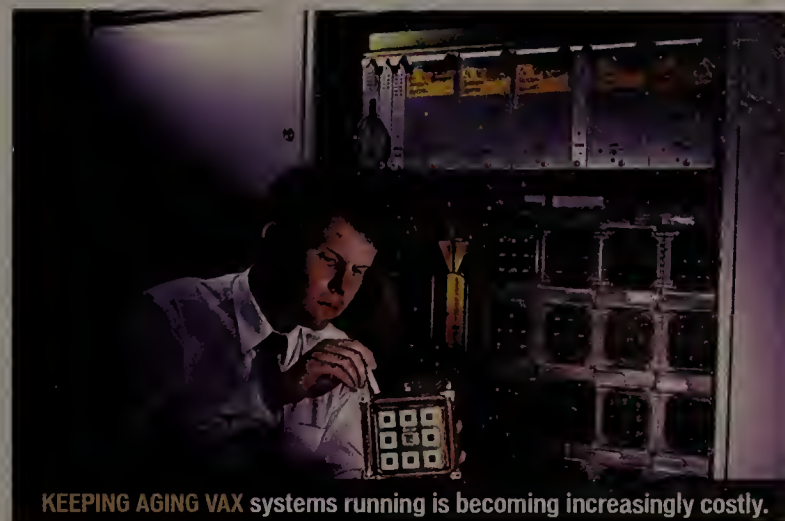
Born in 1977

A reminder of VAX's advancing age came last week when Nemonix Engineering Inc. in Holliston, Mass., announced that it was starting a 24-hour support line for the system. "That's in response to a marketplace that really can't afford to get rid of them," said Beth Bumbarger, Nemonix's CEO. The company, which makes custom hardware components for the VAX, employs many people who once worked at Digital Equipment Corp., the company that developed the VAX in 1977, long before it was acquired by Compaq.

Bob Blatz, HP's director of marketing for OpenVMS, reaffirmed the company's VAX commitment. "We intend to continue supporting that line — we have no plans to stop it," he said. HP plans to port OpenVMS to its Itanium-based Integrity server line by the end of the year.

Users will be under increasing pressure to migrate as HP's maintenance costs increase and the reliability of the systems declines. Blatz estimates that the number of VAX systems in use is shrinking by about 10% each year.

But HP is continuing development of OpenVMS, and Blatz said that for the Integrity server, the company has more than 650 applications committed from 300-plus independent software vendors. And in the major OpenVMS markets — financial services, government, health care and telecommunications — he expects nearly 100% of the applications will be ready for porting to Integrity.

Still, no porting effort will

KEEPING AGING VAX systems running is becoming increasingly costly.

be easy or inexpensive. Users are often running legacy applications that have been heavily customized. Source code may be missing, and specific hardware calls to VAX systems may have been written, complicating a migration. That's a problem Blackshear faces; he estimates that porting to another system will cost $200,000.

One migration option is using Software Resources International SA's VAX emulator, Charon-VAX. The Geneva-based company was a former Digital software engineering center that was formed through a buyout.

One Charon-VAX user is Midwest Microwave Inc., a components maker in Saline, Mich., that was running a 10-year-old VAX machine until last year. It has moved OpenVMS and its manufacturing resource planning system to a system with dual Athlon processors, which are made by Advanced Micro Devices Inc.

"There is absolutely no migrating or porting or code conversion," said Barry Treahy, Midwest's vice president and CIO. The application "thinks it's on a VAX," he said. **○ 47934**

Intel Counters AMD With 64-bit Extensions to x86

Could affect price, supply of 64-bit x86 machines

BY PATRICK THIBODEAU

Intel Corp. last week released 64-bit extension technology for x86 workstations and in two months will deliver the technology for servers.

Intel is following Advanced Micro Devices Inc. in releasing an x86 processor that can run both 32- and 64-bit applications. AMD's Opteron has already shown that there is demand for this capability on lower-cost, industry-standard servers.

The 64-bit capability is particularly important in research environments. The University of Notre Dame in Indiana, for instance, recently installed a 256-node cluster of Opteron processors for research applications.

Gordon Wishon, Notre Dame's CIO, said he expects Intel's entry in the market to "substantially influence price as well as availability of ma-

MORE ONLINE

The Intel/AMD super-computer race heats up:
○ QuickLink 47930
computerworld.com

chines of this type." He said he will consider moving his 64-bit RISC-based environments to x86 extensions because doing so "could substantially reduce cost" and boost performance. But he doesn't want to be the first to use it — he will wait until application vendors have tested their software and mitigated the risks, he said.

Vendors don't appear to be expecting an onslaught of demand for 64-bit x86 applications as alternatives to ones already running on Itanium and RISC-based chips. There has been no flurry of vendors announcing 64-bit x86 versions of their software.

Tim Tribe, a product manager at financial system application vendor CODA Group Holdings Ltd. in Harrogate, England, said his company will release a 64-bit version of its software when customers demand it — something he expects will come from new users. "I see it quite clearly divided between existing users of our applications and new users," he said.

Users running in 32-bit environments, such as Paul Romano, senior manager of computer operations at Commonwealth Automobile Reinsurers in Boston, may see no compelling reason to jump to 64-bit. Romano said the 32-bit custom applications in his Microsoft shop are stable and running well. And he's not about to change that.

Intel officials said they don't see their x86 extension technology competing with Itanium, which is positioned against RISC systems.

But Randy Bryant, dean of the School of Computer Science at Carnegie Mellon University in Pittsburgh, said he believes "Itanium is dead — DOA." There may be performance issues with x86 extensions, but "the thing about x86 is, I can run my old code on it," said Bryant. He added that multithreading technology can improve application performance in x86 environments.

The arrival of 64-bit x86 extension technology "really opens the door to all [independent software vendors] to at least consider whether they should 64-bit-enable their applications," said Gordon Haff, an analyst at Illuminata Inc. in Nashua, N.H.

The x86 extension technology will likely populate the Wintel server lines of the major hardware vendors, in much the same way they have adopted Opteron. In the case of Opteron, however, Dell Inc. continues to be a significant holdout.

Although Sun, Hewlett-Packard Co. and IBM are all delivering Opteron-based hardware, a Dell spokesman said last week that his company has no plans to do so in the near future. Dell is, however, continuing to evaluate AMD's technology, the spokesman added. **○ 47933**

> " Itanium is dead – DOA. The thing about x86 is, I can run my old code on it.

RANDY BRYANT, DEAN OF THE SCHOOL OF COMPUTER SCIENCE, CARNEGIE MELLON UNIVERSITY

BRIEFS

Oracle Needs to Grow, Ellison Says

As part of Oracle Corp.'s defense of its bid for PeopleSoft Inc., Oracle CEO Larry Ellison testified that his company needs to grow via acquisitions to remain competitive with SAP AG and Microsoft Corp. "The only way we can increase our investment in engineering and . . . lower our price is to increase our installed base," Ellison said in U.S. District Court in San Francisco. Closing arguments by Oracle and the U.S. Department of Justice are scheduled for July 20. (For more details, go online: QuickLink a4740.)

Hallmark, ACS Ink IT Services Deal

Hallmark Cards Inc. said it has signed a seven-year, $230 million outsourcing and IT services deal with Affiliated Computer Services Inc. Dallas-based ACS will offer jobs to 145 Hallmark workers and take over functions such as network services, desktop support and help desk operations. ACS is also setting up a new IT support services facility in Kansas City, Mo., where Hallmark is based.

GE Sends Some Coding Offshore

General Electric Co. said it has contracted with offshore IT services firm MindTree Consulting Pvt. to set up and manage a software development center in Bangalore, India. The facility initially will have about 50 workers and focus on ERP, data warehousing and Web-based applications for GE's equipment services division.

Short Takes

Bangalore-based INFOSYS TECHNOLOGIES LTD. had to temporarily shut down its network after being hit by an unspecified virus. . . . CISCO SYSTEMS INC. said it will pay $82 million to buy ACTONA TECHNOLOGIES INC., a Los Gatos, Calif., developer of wide-area file services software.

[ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL

MATTHEW FAULKNER

Dashboards Can Steer Users in Wrong . . .

. . . direction without "taking a painful exploration of underlying business processes." Sober thoughts, especially given that they come from Colin Dover, product marketing manager at Hyperion Solutions Corp., a Sunnyvale, Calif.-based business intelligence concern that supplies BI dashboards. "The technology is the easy part," he says. Dover estimates that 60% of the success or failure of dashboard implementations depends on "getting to the nub of what your business truly is." That may sound like a cinch, but "common points of alignment" among various business units aren't that easy to quantify in ways that are useful for dashboard users, he says. In other words, prepare for a truckload of meetings between your various dashboard constituencies to create meaningful business metrics. Drive carefully.

No Need for James Bond . . .

. . . with SpyCatcher 3.0, available later this month in retail outlets. But don't let the commercial release deter you from evaluating the spyware elimination tool. "It was designed with corporations in mind," says CEO Joshua Blanchfield of Tenebril Inc. in Boston, which created the software. It uses a remote

1:2

Ratio of machines infected with spyware to those not infected, according to EarthLink.

console so an administrator can manage thousands of clients. Spy-Catcher comes with a library of "spyware fingerprints" that's regularly updated. And if you work in a place that discourages fun, you can suppress unwanted applications, such as games, by adding them to its database. SpyCatcher 3.0 uses an aggressive reinstall-prevention shield that keeps the malware from returning to the PC. Cost? Depends on how many copies you get. A recent contract for 40,000 users went for $2 a copy, says Blanchfield.
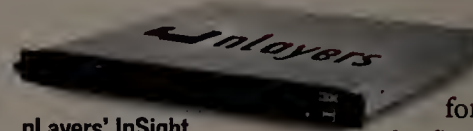
Discipline Application Behavior . . .

. . . with new appliance. This week a San Jose start-up, nLayers Inc., ships its first product, InSight, which cre-

nLayers' InSight

ates an "application behavior model through deep packet analysis," says CEO Gili Raanan. He argues that most performance management tools are devoted to watching infrastructure activity such as routers and switches and not the applications, which Forrester Research Inc. estimates cause 54% of unscheduled downtime. Raanan theorizes that in a world of Web services and distributed software, "questions like, 'What is my application?' and 'Where is my application?' have become metaphysical questions and not engineering ones." To know the health of a given application means knowing more about the condition of a machine or even a set of machines. You need to look at the overall behavior of the application. That, he says, is what InSight does, by passively detecting and then observing packaged and custom applications on your network. InSight displays the complex interdependencies and behavior of programs, then simplifies the view so managers can, say, streamline their distribution to improve performance. You can buy a subscription for $2,438 per month or get a perpetual license for $45,000.

Control Batch Jobs in Mixed . . .

. . . environment from Windows console. ActiveBatch from Advanced Systems Concepts Inc. in Parsippany, N.J., lets you queue jobs on Linux, OpenVMS, Unix and Windows machines to run at any time and in the correct order, establishing triggers between the successful completion of one job before another kicks off. Version 5 is ex-

pected to be ready for delivery the first week of September. It will add Kerberos security and let you create a "job plan" that coordinates numerous jobs into a single entity for easier management. The upgrade will also add new job types, such as customized e-mail messages. Pricing has not yet been determined.

Appliance Boosts Data Warehouse . . .

. . . performance while cutting costs. A tenfold performance jump at half the price. That's the boast from Jit Saxena, CEO of Netezza Corp. in Framingham, Mass., whose Netezza Performance Server (NPS) runs a fast proprietary database on what he calls "commodity hardware." The trick, though, is to push low-cost Intel processors down to disk drives on the appliance for faster response time "so the data is processed where it's being stored," says vice president of marketing Ellen Rubin. Saxena adds that tuning the database specifically for ODBC, JDBC and SQL business intelligence queries improves performance. General-purpose, high-end Unix machines running Oracle, DB2 and even Teradata databases can't compete, he claims. Because it's an appliance, Saxena says, it's "plug-and-play and doesn't require much of that DBA stuff," saving money on operations costs. An NPS appliance can handle up to 10TB of data, but before the end of the year, Netezza plans to double or triple that. Pricing starts at $700,000 for a 2TB machine. ✆ 47919

Netezza Performance Server

Business Objects Begins To Integrate Crystal Tools

Upgrade follows merger road map, adds unified software portal, CEO says

BY MARC L. SONGINI

BUSINESS OBJECTS SA last week announced a business intelligence software upgrade that provides initial ties between its products and the reporting tools the company acquired when it bought Crystal Decisions Inc. late last year. In advance of the announcement, Business Objects Chairman and CEO **Bernard Liautaud** spoke with *Comput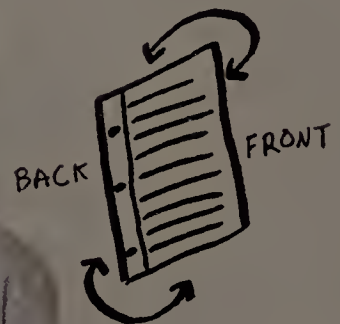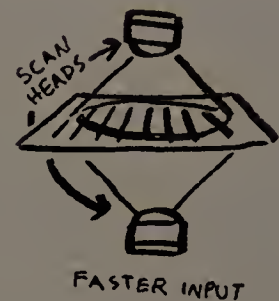erworld* from his Paris office about the merger of the two vendors and the new software release, which hews to an integration road map outlined in January [QuickLink 43946].

What's important about the announcement of BusinessObjects 6.5? It's the first release with the integration of the products of Business Objects and Crystal Decisions. Business Objects has built its success in query technology at the semantic layer, and Crystal Decisions has built it on reporting. ... Now the two things will be together in one product.

We've got a unified portal and dashboard for both Crystal Decisions and the Business Objects products, for the user to log in with a single username and password. It's a true common user experience between the two products. As part of the integration, there [also] will be one single Web services API for the entire product line.

What's the status of the merger with Crystal Decisions from a business standpoint? As of Jan. 1, we have been operating as one company. We defined the road map of the products for the next two years and communicated it to all our customers and partners. We saw 11,000 customers and clarified the message to them that we are going to get an integrated product out by the end of this year. In 6.5, we'll have a lot of integration coming in the front end, and in the next six months in the back end.

That was very reassuring for the customer base because usually in mergers, one product disappears to be replaced by the other. That's not happening here, because we didn't have that much overlap.

How has the deal affected your internal operations? We're closing some offices, and we eliminated some redundant positions. We have let about 300 people go.

What's the hot technology in the business intelligence market? Probably the No. 1 thing is performance management — using business intelligence to drive real business performance improvements with dashboards and scorecard methodologies and real-time information.... That's probably the piece we see the most interest in from the customer base. ◑ **47737**

Version 6.5 Adds to Scalability, Web Capabilities

In addition to providing a consistent user interface for the Business Objects and Crystal Decisions product lines, Business-Objects 6.5 includes upgraded Web reporting tools as well as server optimization and enhanced caching features designed to improve scalability.

The goal is to give a broader set of corporate users access to the tools, said James Thomas, a product marketing manager at Business Objects. "We see in our customer base a trend toward expanding the size of the deployment, so we want to provide for people with less-sophisticated skills," he added.

Jonathan Rothman, director of data management at Emergency Medical Associates in Livingston, N.J., is beta-testing 6.5 and said he welcomes the front-end integration features.

EMA, which provides emergency room staffing and medical services to hospitals, has used Business Objects software for several years. It added Crystal Reports for reporting purposes last year, before Business Objects announced its agreement to buy Crystal Decisions.

"The beautiful thing now about the integration between the two tool sets and companies is that we can take advantage of the infrastructure we've built to publish reports developed in Crystal to our Business Objects dashboards," Rothman said.

EMA runs Business Objects' Application Foundation technology atop a patient-tracking system it developed in-house. Deploying the new integration capabilities was straightforward, Rothman said.

BusinessObjects 6.5 is available on Windows and Solaris, and versions for HP-UX and AIX will ship later this year. Business Objects plans to support Linux by next year, Thomas said.

— Stacy Cowley, IDG News Service

Oracle Uses Acquisition to Close Gap on SOA Tools

Offers Java-based software to link business processes

BY MARC L. SONGINI

Looking to catch up to rival vendors in supporting service-oriented architectures (SOA), Oracle Corp. last week released Java-based software that's designed to make it easier for companies to craft reusable business processes.

Oracle acquired the BPEL Process Manager product when it purchased start-up vendor Collaxa Inc. last month. At last week's 2004 JavaOne Conference in San Francisco, Oracle announced the Collaxa deal and said it's now selling the software, which supports the Business Process Execution Language specification.

BPEL Process Manager will let users tie together different applications without having to rely on point-to-point hooks, said Rob Cheng, director of product marketing for Oracle's application server software and tools. The new offering includes open interfaces, can run on any J2EE-compatible server and is built around Web services technologies such as the Web Services Description Language, according to Cheng.

With the software, business processes can be automated and made portable so they can be quickly adapted as business needs change, Oracle said. For instance, a company that has developed a transactional system to do business with one supplier could take the existing configurations and reuse them with another supplier.

Hypothetically, John I. Haas Inc. could use the SOA technology to more tightly link its supply chain systems with ones at some sister companies and key suppliers, said Kyle Lambert, the hops grower's vice president of information solutions. Washington-based Haas uses Oracle's database, business applications and application server.

Lambert said the applications and Internet portals serving its business partners and customers "don't necessarily talk to each other," limiting visibility into information such as the status of orders. He added that although it's too early to tell whether Haas might deploy BPEL Process Manager, the software could help the company expand its business-to-business collaboration capabilities without extra development efforts. "I just hope my affiliates and vendors also use SOA-compatible systems," Lambert said.

Oracle's product release is a modest first step that at least proves it's serious about offering SOA technology, said Ronald Schmelzer, an analyst at consulting firm ZapThink LLC in Waltham, Mass.

But Schmelzer said Oracle remains behind middleware vendors such as ERP rival SAP AG, which has a more extensive SOA offering with its NetWeaver integration tools. SAP co-authored the BPEL specification with Microsoft Corp., IBM, BEA Systems Inc. and Siebel Systems Inc. ◑ **47908**

TECHNOLOGY DETAILS

BPEL Process Manager

■ **Includes a business process execution engine,** plus a management and debugging console and a design GUI.

■ **Costs $10,000 per CPU** as an add-on for Oracle's 10g application server software, or $30,000 per processor as a stand-alone product.

Delay for FBI's Virtual Case File May Be a Blessing in Disguise

Mismanagement, design inflexibility cited in study

BY DAN VERTON
WASHINGTON

THE FACT that the FBI's long-awaited electronic case file system will not be fully deployed by the end of this year as planned may be more of a saving grace than an embarrassment. The FBI needs to take the time to get the system right, analysts said last week.

The system, known as the Virtual Case File (VCF), was envisioned as a means of enabling agents to conduct rapid, paperless information sharing; it's a major component of the FBI's IT modernization effort, known as Trilogy. But only one module of the system, the automated workflow application, is scheduled to be deployed by the end of the year.

"Because the software program is large and complex, we are modularizing VCF capabilities and then testing them, deploying them to subset user groups, evaluating performance and then building upon them," said an FBI official whom the agency would not allow to be identified.

And that's actually a welcome development, said analysts, who have criticized the bureau in the past for not taking a phased approach to such a large IT deployment. In addition, the bureau has only recently begun to reverse years of mismanagement and design flaws that have led to major delays and problems with the deployment of the system, analysts said.

In a letter sent to the FBI on June 9, a committee of IT experts from the National Research Council (NRC) cited "clear evidence of progress" in the month since it issued a scathing report of the Trilogy program. That report, sponsored by the FBI and issued on May 10, outlined a series of past missteps in the design and deployment of the VCF system that by all accounts made enterprisewide rollout by December 2004 impractical and highly risky.

A Matter of Time
But while the progress has been "reassuring," the bureau faces many remaining IT challenges that will take time to fix, the NRC said.

For example, according to the NRC study, the VCF system was developed without the benefit of prototyping and testing. In addition, the bureau had no contingency plan in place for handling "mission disruptive failures" that could stem from the bureau's planned "flash cutover" from the old system to the VCF system.

"With limited testing, and no experience gained from a limited initial rollout, the FBI would be implementing what amounts to a prototype throughout the bureau," the NRC concluded in its study. "This approach is nearly guaranteed to cause mission-criti-cal failures and further delays."

In light of that criticism, the decision to delay the rollout in favor of a phased deployment is not surprising, said Bill Hamilton, CEO of Inslaw Inc., a Washington-based developer of case management software. "It is difficult to imagine a comparably sized private enterprise ever even considering doing something like a flash cutover without rigorous testing," he said.

The initial "inflexible" design of the VCF system has also played a role in the continued delays of the system, according to the NRC. The VCF was originally designed in the mid-1990s to support criminal investigations and not terrorism

**A Review of the
FBI's Trilogy Information Technology
Modernization Program**

James C. McGroddy and Herbert S. Lin, Editors

Committee on the FBI's Trilogy Information Technology Modernization Pr...
Computer Science and Telecommunications Board
Division on Engineering and Physical Sciences

A National Research Council report cited progress but warned IT obstacles remain.

intelligence gathering and analysis, according to the NRC report, which went so far as to recommend that the FBI develop an intelligence system architecture "from scratch" rather than rely on the VCF system.

San Diego-based Science Applications International Corp., the vendor working on the VCF system, declined to comment and referred all inquiries to the FBI. The FBI official said the current contract with SAIC runs through December 2004 and that cost-sharing mechanisms will come into play if the firm doesn't deliver on the contract as outlined.

However, one of the authors of the NRC report who spoke on condition of anonymity said the current delay is the result of years of mismanagement by the FBI that allowed the contractor "to run the show." The delay, however, is "actually a good thing," the official said, because the bureau has always had a choice "to do it slow and get it right, or do it fast and screw it up." ● **47938**

Court Blocks ISP From Reclaiming IP Addresses

BY JAIKUMAR VIJAYAN

An initial ruling by a New Jersey state court judge in a lawsuit filed by a Web hosting firm is causing alarm among some Internet service providers, who fear that the ruling will set a dangerous precedent for letting companies retain their IP addresses even if they switch ISPs.

But the American Registry for Internet Numbers (ARIN), a Chantilly, Va.-based organization that manages the distribution of IP addresses in North America, said those fears are misplaced. The ruling "is not a problem when read in context," ARIN said in a statement signed by Ray Plzak, its president and CEO.

Plzak added that he thinks the concerns raised about last week's ruling resulted from the manner in which the litigation was described by one of the parties — an apparent reference to Net Access Corp., the Parsippany, N.J.-based ISP that is the defendant in the case.

University Communications Inc. (UCI), a Web hosting firm in Parsippany, received a temporary restraining order from a New Jersey Superior Court judge that allows the company to continue using its current IP addresses even though it has terminated its Internet access contract with Net Access.

Although some large companies own their IP addresses outright, ARIN typically assigns the numerical addresses to large ISPs, which in turn allocate them to their customers. The ISPs get the ad-dress space back when customers end their contracts. But for now, the court ruling prevents Net Access from reassigning or interfering in any way with UCI's use of the IP addresses it was assigned.

"If this ruling is upheld, it has the potential to disrupt routing throughout the Internet and change practices of

IP Address Legal Dispute

Who's involved: Web hosting firm University Communications Inc. and ISP Net Access Corp.

What's at stake: UCI wants to continue using IP addresses that were assigned to it by Net Access while client systems are reconfigured with new numbers.

Current status: UCI's request for a temporary restraining order against Net Access was approved by a New Jersey judge.

business for any Internet service provider," claimed Net Access President Alex Rubenstein in a letter that was posted on the mailing list of the North American Network Operators' Group.

Allowing UCI to continue using the IP addresses compromises the "right of the provider to maintain control and use of the address space assigned to his network," Rubenstein said in his note.

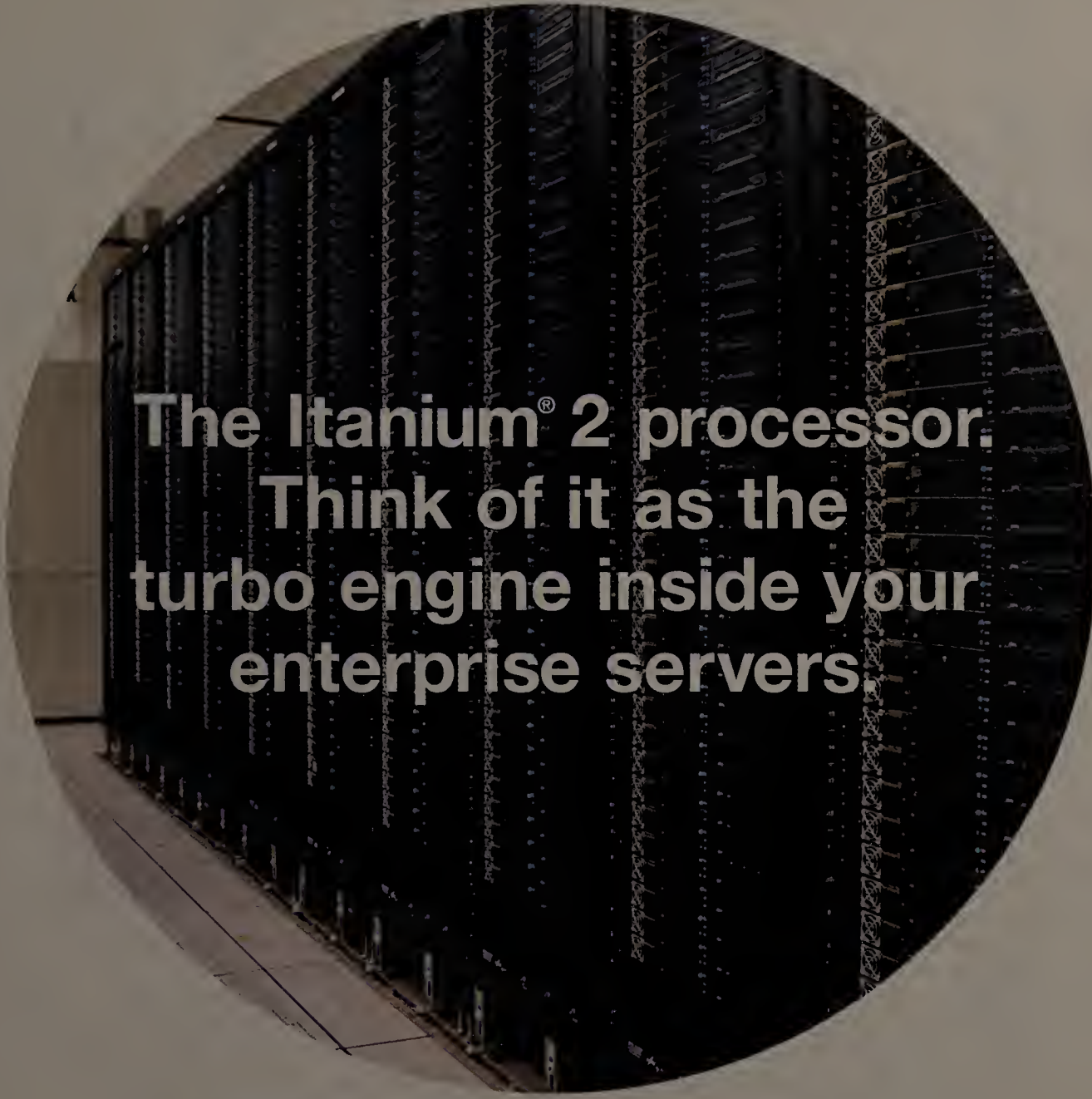Neither Rubenstein nor UCI officials responded to requests for comment following his posting.

In its court filing, UCI said it was seeking the restraining order because it wanted to prevent Net Access from disrupting its business while it switches ISPs. UCI added that the effort needed to assign fresh IP addresses to each of its 3,000 customers will take longer than the period specified in its contract with Net Access. ● **47942**

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Microsoft to Allow Win CE Changes

Microsoft Corp. said it will share more of the source code for its Windows CE embedded operating system with hardware makers and allow them to modify the code for their own commercial uses. Companies won't be required to share their modifications with Microsoft or other CE licensees. The changes take effect in Windows CE 5.0, an upgrade that's due to be released to manufacturing this week.

Nortel to Sell Off Production Plants

Nortel Networks Ltd. said it will divest most of its remaining production facilities to Flextronics International Inc., a Singapore-based contract manufacturer. The agreement is valued at between $675 million and $725 million and includes a four-year contract for Flextronics to provide manufacturing services to Nortel.

Investment Firm Sues CA Over Pay

Ranger Governance Ltd., the Dallas-based investment firm that tried to take control of Computer Associates International Inc. in 2001, has filed a lawsuit asking that 12 former and current CA executives be ordered to pay back more than $1 billion in compensation. The suit stems from CA's April admission that it improperly booked revenue in the past. CA said it's reviewing "the matter of compensation given or due" to individuals who are subject to an ongoing government probe.

Short Takes

The **SECURITIES AND EXCHANGE COMMISSION** sued **SIEBEL SYSTEMS INC.**, claiming that two of its executives broke financial disclosure rules last year. . . . **NOVELL INC.** released Version 1.0 of Mono, an open-source development platform it's pitching as an alternative to Microsoft's .Net.

Banks, Brokerages Dogged By Message Storage Rules

Mandates for IM, e-mail retention pose IT challenges

BY THOMAS HOFFMAN
NEW YORK

INFORMATION technology managers at financial services firms are finding it increasingly difficult to comply with a bevy of regulations that require them to archive e-mail and instant messaging exchanges with customers and ensure that the messages can be retrieved.

The U.S. Securities and Exchange Commission, the New York Stock Exchange and the National Association of Securities Dealers have all imposed regulations on the types of information that brokerages can share with clients via e-mail or IM and how long messages must be stored so they can be retrieved for regulatory audits.

The regulations have created "a poisonous atmosphere" for brokerages that are struggling to comply with them, said Stephen Shine, senior vice president and senior counsel at Prudential Equity Group LLC in Newark, N.J. He was one of the speakers at a conference on the use of messaging and collaboration tools in the financial services industry, held here last week by New York-based Information Management Network Inc.

Shine said one of the big challenges securities firms face is being able to retrieve e-mail correspondence for regulators within 24 hours, as some measures require. "Regardless of how sophisticated your e-mail retrieval system is, you won't be able to comply by tomorrow," he said.

He recommended that companies take several steps to "intervene" with regulators, such as asking for adequate time to review e-mail messages in order to determine whether any of the requested correspondence impinges on attorney/client privileges.

Not complying with the messaging regulations is a potentially costly problem. The most notable enforcement actions were taken in December 2002, when the SEC fined five broker/dealers a total of $8.25 million for improperly storing e-mail [QuickLink 34912].

Brokerages frequently audit and test their e-mail and IM backup and recovery procedures, but those efforts are probably not done "consistently enough to meet regulatory requirements," said Andy Welch, a senior manager at KPMG LLP's risk advisory practice in Short Hills, N.J.

Regulators at the Federal Deposit Insurance Corp. in Washington are also concerned about the potential network security vulnerabilities created when bank employees use IM tools for external communications.

Attempts by banks to secure IM exchanges via the use of firewalls have proved to be "very difficult," said Kathryn Weatherby, an examination specialist in the FDIC's division of supervision and consumer protection.

In order to help reduce the security threats, Weatherby recommended that IT managers at banks set and enforce limits on which of their employees can use IM externally.
○ **47936**

What You Should Do

Speakers at last week's conference offered these tips for IT managers:

DEVELOP a plan specifying who at your company should be involved in e-mail or IM search-and-retrieval efforts.

TEST messaging systems regularly to ensure that they meet regulatory requirements for data backup and recovery.

NOTIFY regulators of factors that could affect message retrieval, such as technical or staffing constraints.

PRIORITIZE the types of messages that need to be retrieved first in response to requests from regulators.

Microsoft CRM Pace Frustrates Users

BY STACY COWLEY

After its launch in a blaze of hype early last year, Microsoft Corp.'s CRM software is on a slower-than-expected development path, frustrating some users.

Microsoft now expects to have Version 2 of the software ready in mid-2005, more than two years after it released the first version. In the interim, the company has issued point upgrades to fix bugs and expand functionality, but the current release, Microsoft CRM 1.2, still lacks features found in rival midmarket products.

"I think Microsoft CRM wasn't ready when it was released," said customer Jeremy Whiteley, CEO of Promarketing Gear Inc. in Kirkland, Wash. Whiteley switched

> ❝ We understood [the software] is a Version 1, but we didn't understand there would be this many challenges.
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>
> **MICHAEL KRUGER**, IS MANAGER, DESIGNER DOORS INC.

from FrontRange Solutions Inc.'s GoldMine to Microsoft CRM but then switched back.

Whiteley said the problem was that Microsoft's software inserted a long string of characters in the subject line of every e-mail sent through the system. Intended as a feature to help with tracking, the ID string annoyed many customers, and Microsoft issued a patch to let users turn it off. That patch came after Whiteley had already decided to stop using the software.

Features TBA

Microsoft only recently acknowledged that Version 2 won't be finished this year. The update's feature set is still being determined, though Microsoft said it will include integration with Navision 4, an important addition for customers of the Navision applications Microsoft acquired.

Michael Kruger, IS manager at Designer Doors Inc. in River Falls, Wis., said his company is scaling back its Microsoft CRM use until Version 2 is available. In October, the company began rolling out the software to about 40 employees but soon hit major problems with unreliable synchronization between Microsoft CRM and Outlook.

"I like Microsoft CRM, and I believe I will like Version 2 a lot," Kruger said. "We understood [the software] is a Version 1, but we didn't understand there would be this many challenges. Had we known, we may have waited."

Holly Holt, a senior product manager at Microsoft, acknowledged that some customers are having trouble with synchronization but said that many are seeing significant improvements with the fixes that will be included in a feature pack due next month. Holt added that Microsoft is "happy and on pace" with its CRM development efforts.
○ **47941**

Cowley writes for the IDG News Service.

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IT Overhaul

ities, including a 30% reduction in Lend Lease's IT staff during recent years, said Miles. Lend Lease has also made a series of acquisitions and divestitures that have left the company with an overly complex IT infrastructure, Miles said.

In addition, Lend Lease consolidated seven North American data centers into its Atlanta IT facility two years ago — a move that wasn't accompanied by an upgrade of its technology management capabilities.

From a business standpoint, security, network and systems management are being converged now partly because Lend Lease wants to be sure it can handle competing corporate goals: opening

MILES: Lend Lease's management tools overhaul is a response to staff cuts and several acquisitions.

up online processing of bids for construction projects in order to stay competitive in that market, while making sure that financial data from its investment business is secure. The $7 billion company's presence in the financial services market also requires it to be prepared for internal and external audits of its IT security capabilities and financial records, Miles said.

Miles and Lend Lease CIO Jay Skibinski, both of whom are based at the company's Shared Technology Center in Atlanta, wouldn't divulge the cost of the project. But industry analysts said the scope is very large, with the software costs alone perhaps amounting to more than $1 million.

The project timeline also is ambitious. Lend Lease developed a blueprint last November, chose its vendors in Febru-

ary and started the software implementation work in March. "One principle we agreed upon at the start was the need to fire once and do it right," Skibinski said.

Lend Lease is installing management tools from BMC Software Inc.'s Remedy subsidiary, NetIQ Corp., ManageSoft Corp. and M-Tech Information Technology Inc., as well as underlying technology from Microsoft Corp. and Oracle Corp.

Integrating the tools will let network operations engineers and help desk staffers use one primary system based on Remedy's software to "monitor all critical events and respond to them more efficiently," Miles said. Global monitoring of the company's systems and networks will be done around the clock at the Atlanta facility.

SKIBINSKI: "One principle we agreed upon at the start was the need to fire once and do it right."

Such information should help Lend Lease determine the cause of problems affecting its systems and network components, said Michael Disabato, an analyst at Burton Group in Midvale, Utah. He noted that network faults, such as an outage stemming from a backhoe cutting a fiber cable, require much different responses than denial-of-service attacks and other security incidents.

"There is so much going on in a global network with many locations that you need some method of sorting it all out and making sense of it," Disabato said.

Scott Crawford, an analyst at Enterprise Management Associates Inc. in Boulder, Colo., has talked with Miles about the project and said he views it as "a very advanced endeavor in implementing manage-

ment architecture." Crawford added that the Lend Lease project is part of an emerging trend toward converged systems and network and security management, partly driven by the reality of IT job cuts — as is the case at Lend Lease.

The expanding capabilities of management tools also are a factor, Crawford said. Until recently, management software couldn't identify security problems as the root cause of network issues. "Increasingly, security management will be less of a product or a service in its own right and more of an aspect of management software as a whole," he predicted.

One of the biggest challenges of the project was getting the different vendors to work together to integrate their products, Skibinski said. The vendors saw risks in the process, he added, but were willing to write additional code "so they can demonstrate to other customers that they can work with other products." ⦿ **47909**

Microsoft

said Ashok Bakhshi, IT director at Schindler Elevator Corp. in Morristown, N.J. But Bakhshi said he now wonders whether the company will revert to its old ways.

"They [haven't been] as arrogant, sometimes, in dealings [as] they were before," said Bakhshi. But with the end of the antitrust case, Microsoft "might get back to the old ways. That's the tendency of

any big corporation," he said.

Microsoft's IT industry opponents consider the decision a disaster.

"I think we will see [Microsoft] be a little more aggressive," said Mike Petit, president of ProComp, an anti-Microsoft industry group that has supported harsher remedies than those agreed to in the antitrust settlement. "They can still wreak havoc on the industry.

"For people who ask the question, 'What kinds of things can be commingled

into Windows?' [the answer is], 'Anything that they choose,' " said Petit. The settlement imposed "no restrictions at all on that," he added.

Massachusetts, joined by the Computer & Communications Industry Association and the Software & Information Industry Association, had argued that the U.S. antitrust settlement didn't go far enough and sought a range of tougher sanctions. Those

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⦿ QuickLink s1100
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harsher remedies included forcing the company to open-source its Internet Explorer Web browser and to allow the porting of Office to other operating systems, such as Linux. Massachusetts also sought to force Microsoft to unbundle some of its operating system functions, like Media Player.

Last week's decision likely means that the end of the legal line in that effort has been reached, legal experts said.

"A Supreme Court appeal is beyond a long shot for the plaintiffs," said Hillard Sterling, an antitrust attorney in Chicago who has followed the case since its beginning in 1998. "It's virtually certain the court would have no interest in even taking this case."

Microsoft officials said the development is the most important to date in resolving its antitrust battles.

The decision "has made clear that Microsoft and the rest of our industry can move

forward with this decree and judgment in place," said Brad Smith, Microsoft's senior vice president and general counsel.
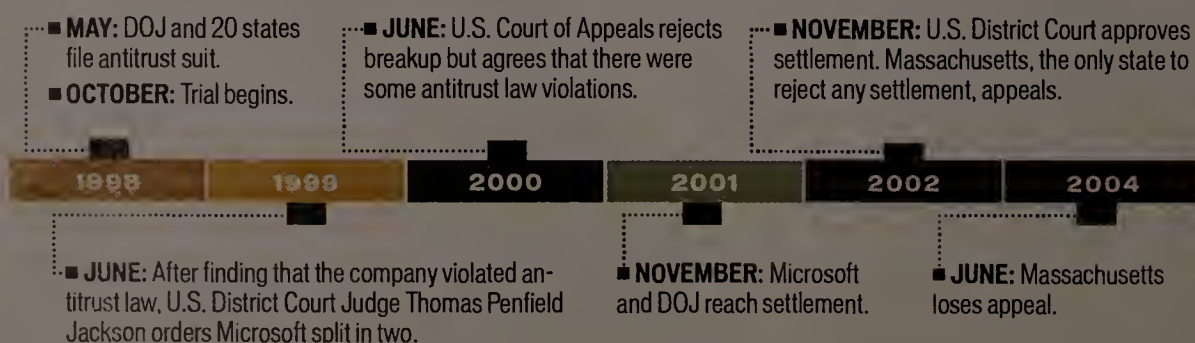
The ruling in effect supports Microsoft's operating system strategy, said Smith. "The Court of Appeals made clear . . . that removing code from Windows would be a huge step backward." ⦿ **47923**

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Corrections

A story in last week's special report about on-demand computing misstated Sun Microsystems Inc.'s role at an Affiliated Computer Services Inc. data center. The data center is managed by ACS and uses Sun equipment.

The last name of David Stacy, global IT security director at St. Jude Medical Inc. in St. Paul, Minn., was misspelled in last week's Page One story about the CISSP security certification ["ISO Endorses Key Security Certification"]. The story also misstated St. Jude's revenue, which totaled $1.9 billion last year.

Microsoft Antitrust Timeline

- **MAY:** DOJ and 20 states file antitrust suit.
- **OCTOBER:** Trial begins.

- **JUNE:** U.S. Court of Appeals rejects breakup but agrees that there were some antitrust law violations.

- **NOVEMBER:** U.S. District Court approves settlement. Massachusetts, the only state to reject any settlement, appeals.

1998	1999	2000	2001	2002	2004

- **JUNE:** After finding that the company violated antitrust law, U.S. District Court Judge Thomas Penfield Jackson orders Microsoft split in two.

- **NOVEMBER:** Microsoft and DOJ reach settlement.

- **JUNE:** Massachusetts loses appeal.

Magazine Of the Year.

SHARON MACHLIS

A Voter's Paper Trail

IF VOTING IS a cornerstone of democracy, so is the belief that one's vote will be properly counted. That's why the stakes — and emotions — are high as vendors, government officials and citizens groups debate the use of electronic voting machines.

Advocates of e-voting systems could learn something from the e-commerce industry, which spent years battling consumer fears that online transactions were unsafe. Early Web retailers argued that transmitting encrypted credit card data over the Internet was substantially more secure than, say, giving your card to a waiter and letting him walk out of sight. But logic alone wasn't enough to persuade the masses.

SHARON MACHLIS is online managing editor at *Computerworld*. She can be reached at sharon_machlis@ computerworld.com.

It also took major marketing efforts aimed at convincing consumers that they wouldn't be liable for fraudulent transactions before large numbers of shoppers felt confident buying online. Ultimately, people were able to test the waters by making small purchases from trusted brands. When neither their identities nor card numbers were stolen, most were willing to try again.

How can voters judge whether their use of an electronic voting machine is a success? Several groups are lobbying for a "paper trail," arguing that machines should keep a paper record of each vote cast. This is a reasonable compromise between banning the machines outright and allowing software-only systems with questionable recount abilities.

An independent report issued last week recommends that election officials hire security teams to test their systems, train all poll workers on security issues, develop audit procedures and conduct "parallel" tests of a few random systems. (Because the report's goal was to offer security advice for systems already in place, it didn't address the issue of paper trails.)

However, it's doubtful that those steps alone will convince skeptics that e-voting is secure. When well-credentialed experts say it's not that hard to hack into an electronic voting machine, voters have every right to be concerned [QuickLink 46750], even if other experts claim that such tampering is a low-level or "theoretical" risk.

Vendors need to remember that their customers aren't just local officials who sign purchase orders, but also voting citizens who ultimately foot the bill. As many IT managers have learned the hard way, end-user buy-in is critical to successfully implementing new technology. The more disruptive or controversial the system, the greater the need to convince users that they will benefit. If paper printouts are a feature that voters say they want, build them into the system.

Industry critics say that such a mandate could lead to jammed printers, which could slow or even halt Election Day voting. However, voters should be rightfully skeptical of companies that promise sophisticated hack-proof technology and yet can't make a dependable printer. As one paper-trail advocate noted, ATMs and gasoline pumps regularly give paper receipts without incident.

Others complain that the paper requirement could make the machines too expensive. But if that's the case, it would be better to delay deployment until hardware prices come down than to spike an important feature.

No one *must* shop online (and plenty of people still don't). We have other venues to get goods and services. Voters, though, aren't given a choice between paper or touch screen ballots when they arrive at polling places — which makes it vital that citizens have confidence in their local systems.

Paper isn't a panacea, as the 2000 Florida vote-counting debacle made painfully clear. But deploying new technology for a mission-critical function while ignoring the wishes of end users is rarely a recipe for success. ◑ **47905**

Maryfran Johnson is on vacation. Her column will return in next week's issue.

EXHIBIT at COMDEX? GEE, WE'D LOVE to, BUT WE HAVE to, um ...

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PIMM FOX

Free .iq Now

IRAQ SEEMS to be everywhere. The country is in headlines and political speeches and could affect the outcome of the U.S. presidential election in November.

But it isn't on the Internet.

Because of a legal dispute, the Internet Corporation for Assigned Names and Numbers has frozen the .iq address, making it impossible for Iraqi organizations, businesses and people to establish their unique identities online.

This should be changed, now.

You can make the argument that now that Iraq's interim government has taken over from the Coalition Provisional Authority, worrying about online domain addresses is far down on the list of priorities, below things like public safety, reliable electricity and routine commercial air flights.

But I disagree.

The task of rebuilding Iraq is immense, and any resource that can be applied to the effort should be used. The importance of making it possible for government ministries to effectively communicate and coordinate reconstruction work is self-evident.

PIMM FOX is based... Computerworld...

The former U.S. administrator in Iraq, L. Paul Bremer, as well as Siyamend Ziad Othman, head of the new National Communications and Media Commission of Iraq, have both asked ICANN to release .iq for use.

So, why the holdup?

It seems that InfoCom Corp., the Richardson, Texas-based company that runs the .iq domain name, was indicted in 2002 for allegedly exporting computer equipment to Libya and Syria. In addition, the company is charged with sending money to terrorist groups in the Middle East.

Until the conclusion of the trial, which began in Dallas last month, .iq stays locked up.

This doesn't make sense.

The Iraqi people need and deserve the opportunity to have an electronic identity. They should be able to build Web pages, establish businesses and create electronic communities without

having to borrow domain names from other countries in the region.

One way to facilitate the use of the .iq domain would be to put it in an escrow account until the trial is completed, so it could be made available now to Iraqis on a nonprofit basis.

Getting Iraq on the Internet could give it a technological boost and perhaps even encourage a broadband build-out of the country's infrastructure. In the past, less-developed countries have been able to move from no phone service to mobile phone service, completely bypassing the time and costs of fixed-line development.

But perhaps the most important reason to release the .iq domain is the one least likely to come with dollar signs. It has to do with this strange notion: It's intrinsically a good thing when people have a say about their lives and are able to communicate their feelings, opinions and ideas to others through e-mail, online postings, Web sites and blogs.

It can build pride and respect. And, if you can for only a moment cut through the cynicism so prevalent in what we call a technologically advanced culture, it can give people a chance to dream.

If ever there was a country that needs to dream, it's Iraq. Freeing the .iq domain address is a start. ◗ **47795**

DAN GILLMOR

The Land Of the 'Free' Hot Spots

SOMETIME soon, Boingo Wireless, a Wi-Fi wireless hot-spot service provider, will launch a product I've been bugging the company about for a long time: a Macintosh client. But now that it's almost a reality, I find myself wondering if it's too late.

Not that I've stopped using a Mac when I travel. Despite Apple's quality-control problems and the occasional application I'd like to use that runs only on Windows, I'm still a Mac user and will probably remain one for the most part.

The reason I wonder if it's too late for Boingo to be useful for me is that I have doubts about the entire business model of charging for Wi-Fi access. I'm just not convinced that it makes sense.

Now, I'm not suggesting that Wi-Fi should be "free" in any serious way. What I question is the idea that hot-spot providers can charge high rates except in a fairly small set of circumstances.

The cost of setting up a hot spot is being driven down, down, down. Once you have a connection to the Internet, adding an access point is dirt-cheap.

More and more businesses are seeing value in adding hot spots and offering access as part of their overall service —- something like the free glass of tap water you get at the restaurant before you order your meal.

If a coffee house offers me access, I'm likely to stay longer and drink more coffee. How many extra cups of coffee does a store owner have to sell every week to cover the cost of the hot spot and make a little extra?

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spots. The best reason, if the most annoying, is that you have no choice. Airports and hotels tend to lease "air rights" to commercial providers, and sometimes the only way to catch up with e-mail on a trip is to use the commercial service.

Another good reason is something Boingo understands: the need for security in a notoriously insecure environment. Boingo creates an encrypted virtual private network tunnel from the user's computer back to its own servers, a feature that adds genuine value. I have a VPN to my company's servers and use a Secure Shell server to get to my own domain, so I don't really need this feature. Nonetheless, Boingo deserves kudos for providing some security for people who don't have this kind of infrastructure.

The commercial services still don't have enough access points. They'll need to solve that problem before they have a long-range hope of getting my ongoing business.

Meanwhile, I'm still looking for "free" hot spots. There are enough of them for the average user, with more emerging all the time. That should worry the commercial providers. ◗ **47809**

I'd wager not very many.

I'm also baffled by some of the locations I've seen offering wireless access. Whether you're a fan of fast food or not, the idea of taking a laptop to McDonald's seems a little weird. My keyboard is the last place I'd tend to put my fingers right after eating greasy food.

Nevertheless, there are sometimes excellent reasons to use commercial hot

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READERS' LETTERS

Projects Should Be Ongoing, Never 'Done'

IN THE COLUMN "Getting to Done" [QuickLink 46978], Paul Glen touched on the difficulties of development projects but didn't see the true culprit. That culprit is the concept of "done." The problem arises with his premise that all projects should have a conclusion. The reality is that most development projects are support tasks for ongoing operations. By trying to segment this continuous support operation into a series of independent projects, we create the difficulties described.

I'm not saying that deadlines, budgets and resource allocations should be ignored; I'm saying that if I, as a project manager, am going to be able to meet these restrictions, then I need the ability to defer items into the future. If a project is going to be "done," I have the options only to complete or not complete tasks; essentially, an infinite requirement is mapped onto a finite project. If the project is viewed as an ongoing operation, then I have the ability to negotiate trade-offs. If I need to have some set of features available for a trade show, then I can focus on those now and defer other issues.

In addition, as a project progresses closer to its "end," the team is much less willing to listen to new voices, regardless of how valuable

their information may be. But if the project is viewed as ongoing, new information can be addressed as appropriate.

Finally, building consensus is almost impossible in a fixed-length project. One can have only winners and losers. The winners get their issues addressed within the project; the losers do not. With an ongoing project, one can build consensus on when specific issues will be addressed and allow all stakeholders to be winners.
Wayne Mack
Development project manager, South Riding, Va.

Respect for Sanjay

I KNOW IT IS fashionable to give Sanjay Kumar and CA a hard time [QuickLink 47368]. However, as a CA user from 1978 and throughout the time I was a CTO and CIO in banking, I have to say Sanjay made a tremendous change in CA. He brought it from a company that was busy with litigation to one that tried to work with its customers. Your magazine may provide the best evidence, if you go back one, three, five and 10 years and compare the amount of negative customer reaction to CA. I am not a current cus-

tomer and have nothing to gain by saying this; it's just basic decency to let Sanjay have his due respect.
Tsvi Gal
Senior vice president and CIO, Warner Music Group, New York

Lake Wobegon IT

IN THE June 14 issue, Frank Hayes stated, "Remember, half of all IT workers are below average" ["Wage Reality," QuickLink 47474]. This statement is incorrect. It is true that half of all IT workers are below the *median*. But about 80% of all IT workers are below average. Remember the good old 80/20 rule.
James McGovern
Hartford, Conn.

Woe, Canada

THE ARTICLE "Canadian IT Execs Say U.S. Peers Are Overpaid" [QuickLink 47346] ignores several factors that in my view justify a wide difference in salaries between U.S. and Canadian IT workers. For example, many U.S. companies have decreased their health and family benefits, forcing workers to compensate. In addition, Canadian Pacific's Allen Borak adjusted his formula for wage rate comparison to accommodate exchange rates, but

he missed the critical cost-of-living difference.
Sotiris Baxevanis
Senior consultant, Arlington, Va., sotiris1@yahoo.com

IN THE print edition, the story about Canadians saying U.S. workers are overpaid is right next to one that says the Royal Bank of Canada "was delaying its processing of deposits, withdrawals and payments" because of "a routine programming update [that] forced bank workers to recheck and verify tens of millions of transactions daily." I'll bet that was cheap. Maybe there's a reason U.S. programmers are paid more than Canadian programmers.
Jack Beckman
Manager, applications programming, Southfield, Mich.

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

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Speak Easy

BY GARY H. ANTHES

Advances in speech recognition software are extending the utility of traditional applications – and paving the way for broader use.

PLANKTON ART

T HE VELVETY VOICE of that nice young woman on the other end of the phone is really just digits on a disk somewhere at Verizon Communications Inc., but "she" remembers that I spoke to her a few moments earlier, before I was interrupted by another call. "I apologize if I ask some questions you already answered," the voice says. She sounds genuinely contrite.

But the virtual telephone-repair lady is just getting warmed up. "I'll test your line from here," she intones. "OK, I got the line test started. It could take up to a minute. I'll also check to see if anything's changed on the line since you last called." While the test runs, she asks me for more information about my telephone problem, and she seems to understand my every response.

Presently she says, "The line test is finished now. Unfortunately, it couldn't determine if the problem is in Verizon's network or with your equipment, so we need to dispatch a technician. . . . Here we are — I've picked up all of our technicians' current schedules. The earliest we can schedule it is on Thursday, June 3, between 8 a.m. and 6 p.m. Can someone give access to the premises at that time?" The call is soon completed, and on June 3, so is the repair.

Computerized speech has come a long way in 20 years. As Verizon's system illustrates, the technology has become smarter, easier to use and more integrated with other applications. Such technical advances, plus product introductions that facilitate the deployment of the technology by mainstream developers, are enabling new uses for automated speech systems.

A Long and Winding Road
Research in automated speech recognition goes back to the 1930s, but serious commercialization of it didn't begin until 50 years later. In 1988, Dragon Systems Inc. demonstrated a PC-based speech recognition system with an 8,000-word vocabulary. Users had to speak slowly and clearly. One. Word. At. A. Time.

The next big step came in 1990, when Dragon demonstrated a 5,000-word continuous-speech system for PCs and a large-vocabulary, speech-to-text system for general-purpose dictation. Then, in 1997, Dragon and IBM both introduced continuous

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speech recognition systems for general-purpose use.

Meanwhile, corporations began rolling out interactive voice response (IVR) systems. The earlier ones — indeed, most in use today — are menu-driven: "For your fund balance, say or press 'one.'" A few advanced systems are more conversational: "What city are you departing from?" Despite the steady advancements to bigger vocabularies, lower error rates and more natural interfaces, however, speech products have remained specialized tools for niche markets such as PC navigation by the disabled, medical dictation and tightly constrained customer service interactions.

But now, previously stand-alone speech systems are linking up with enterprise systems to access other applications and spawn transactions. As a result, these speech systems — previously the domain of call center and telephony managers — are increasingly becoming something for the IT shop to worry about, if not manage.

Verizon's speech application, for example, can trigger a line test, update customer accounts, schedule repairs

> **"With IVR, it was 'Touch or say three.' Now we can say, 'I'd like to change my address.'"**
>
> **JOE ALESSI,**
> AAA MINNESOTA/IOWA

and create trouble tickets — processes that require interfaces with many systems. "If you create something that's just a veneer, people get it very quickly," says Fari Ebrahimi, senior vice president for IT at Verizon. "But for customers to really get value, you need to do something with the back office."

Many of Verizon's back-office functions have been redesigned as Web services and are accessible by customers over the Web or by spoken request. The new system handles some 50,000 repair calls per day and has boosted the percentage of calls that are fully automated from 3% to 20%,

Ebrahimi says. He won't say how much the company is saving in labor costs, but he says it's "millions and millions."

Verizon's National Operations Voice Portal is deployed across three geographically dispersed data centers, and calls are routed from point to point using voice-over-IP technology. The system uses speech recognition products and user interface designs from ScanSoft Inc. (which obtained much of Dragon's speech technology via acquisition). Telephony servers at each data center are connected to back-office application servers running BEA Systems Inc.'s BEA WebLogic Server.

"The technology that used to be in those telephone silos, managed by the call center manager, is now becoming standards-based and is being driven by the same application server that serves the Web pages," says William Meisel, president of TMA Associates, a speech-technology consulting firm in Tarzana, Calif. "Now the IT department can create the applications in an environment that's more familiar to them."

Better Listeners

Organizations that have deployed speech technology say that recent advancements in natural-language understanding have made the systems more acceptable to callers. "With IVR, it was 'Touch or say three,'" says Joe Alessi, vice president for marketing and IT at AAA Minnesota/Iowa. "Now we can say, 'I'd like to change my address.'"

The organization last year replaced a touch-tone-based IVR member service system with a self-service system built on the Say Anything natural-language speech engine from Nuance Communications Inc. One objective was to reduce turnover in the call center by freeing agents from handling mundane calls, such as requests for new membership cards. Another goal was to address the problem of callers bailing out of the IVR system because they found the menus confusing, Alessi says.

The new system enabled AAA to reassign 20% of its call center staff as the number of calls that could be completely automated increased. And the organization has reduced processing costs by $2 per call on average, for a total annual savings of $200,000, according to Alessi.

T. Rowe Price Group Inc. in Baltimore also upgraded its menu-driven IVR system to a free-form speech system based on IBM's WebSphere Voice Response and Voice Server with natural-language understanding capabilities. The investment company reports big savings in telephone charges because automated

calls can be completed faster. "An area we struggled with is doing transactions in the system," says Nicholas Welsh, a vice president at T. Rowe Price. "They could take three to four minutes, because you have to go through five or six menu legs. Now the same transaction takes 30 seconds because you can speak it all in one sentence."

Tying speech systems to mainstream corporate IT systems, and the use of VoIP, are making it easier to mine databases of voice records, much as companies have mined other customer records for years. For example, Continental Airlines Inc., which has used eQuality Balance from Atlanta-based Witness Systems Inc. to monitor calls and capture voice records and other data for three years, recently began using Witness' new CallMiner product to analyze call content.

IVR analysis tools usually can keep track of and report on a caller's choices based on which menu paths the caller has taken. But CallMiner and a few other tools can go into the voice record and look for specific words or word combinations. Continental, for example, recorded a sample of its 5 million monthly calls and then used CallMiner to turn the dialogues into text and mine it for certain things. In so doing, it discovered that about 10% of the calls contain the word *reconfirm*.

Calls to reconfirm a flight are "quite frankly low-value calls," says Andre Harris, Continental's director of reservations training and quality. She says she used the CallMiner analysis to justify the deployment of a new IVR system just for flight confirmations.

Continental currently has eight people listening to samples of calls in order to manually prepare a "call-mix report," which is used for analytical purposes by marketers and business planners at the airline. "The pilot test [of CallMiner] helped me realize very quickly that I can do this with one person instead of eight," she says.

And do it better. From the manually prepared call-mix report, Continental could see that it makes a sale on only half of all calls, but it couldn't tell why sales were lost. Telephone agents do try to elicit the reasons, and soon automated call mining will enable the airline to analyze callers' responses, Harris says. ◗ **47463**

FUTURE TALK

Researchers at IBM and BBN say advances in speech recognition systems could soon lead to more sophisticated applications:

◗ **QuickLink 47471**
www.computerworld.com

Voice Tools Go Mainstream

Speech and telephony specialists traditionally have built speech recognition systems from complex stand-alone products. But IBM, Microsoft Corp. and others are changing that with speech products based on a broad range of application development and delivery tools.

IBM's Voice Server speech recognition engine, its Voice Application Access middleware (for adding voice portals into enterprise applications) and its Voice Response product (for interfacing with telephone networks) are all part of IBM's WebSphere product line. "The developer of a speech application now has access to the same tooling, application interfaces and databases that the Web programmer has had for several years," says Eugene Cox, director of mobile solutions for IBM pervasive computing. And because the products are based on open standards such as VoiceXML, he says, not all the components of the speech application have to come from IBM. (To learn more about VoiceXML, see Quick-Study on page 27.)

Similarly, Microsoft's new Speech-Server products are intended to bring speech technology to companies that

lack huge IT budgets or employees with specialized speech or telephony skills. "We have taken standard Web programming techniques and developed tools that integrate into Visual Studio .Net," says James Mastan, director of marketing in Microsoft's SpeechServer product group. "You can add speech to your Web applications and program that the way you would any Web application."

And, he says, unlike many IVR systems that "go into a black box in the closet" and don't integrate with corporate systems, SpeechServer can be integrated and managed just like other Microsoft server products.

Mark Plakias, an analyst at Zelos Group Inc. in San Francisco, says a few companies go directly from live customer service agents to automated speech, but a more logical path is to start by building speech on top of Web applications. "Companies are saying, 'I can do this on the Web – self-service really works. Now I'll go back and do this on the phone.' So they are trying to make their phone self-service as flexible and maintainable as their Web self-service."

– Gary H. Anthes

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8:00am – 12:15pm	General Conference Sessions
12:15pm – 1:30pm	Luncheon Sessions
1:30pm – 5:30pm	General Conference Sessions
1:30pm – 5:30pm	Concurrent Developer Tracks
3:45pm – 5:15pm	End User Case Study and Analyst Tracks
5:30pm – 8:30pm	Expo with Dinner

TUESDAY, SEPTEMBER 14

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8:00am – Noon	General Conference Sessions
Noon – 1:30pm	Expo with Lunch
1:30pm – 5:00pm	General Conference Sessions
1:30pm – 5:00pm	Concurrent Developer Tracks
4:00pm – 5:00pm	End User Case Study Track
6:00pm – 8:00pm	Gala Evening

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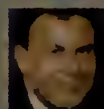
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Big Blue Meets Inspector Gadget

IBM shows its not-so-staid side as its lab works to develop high-tech gizmos. By Gary H. Anthes

THERE'S NOTHING special anymore about a digital bathroom scale. But this one has its own IP address and a Bluetooth connection to a cell phone.

And nearby is a similarly equipped pillbox. Forget your meds, and it might just e-mail you a reminder.

You won't find these items at The Sharper Image just yet. They and dozens of other futuristic gizmos are prototypes at IBM's Corporate Design Center in Somers, N.Y.

That's right — the same company that makes million-dollar mainframes and enterprise application software. Here in what IBM calls its Gadget Lab are devices that sit at the intersection of the marketplace and IBM's vast patent portfolio. Most of the prototypes have been built in small quantities for specific customers.

IBM hopes these demo devices will turn into real products, albeit in most cases manufactured by another company. In addition to generating license fees, IBM hopes they will spawn demand for its big-iron infrastructure products. Wherever there are networked bathroom scales and pillboxes, there must be a server and some database software in the background, IBM figures.

Several forces converged to prompt IBM to establish its Engineering Technology & Services division, which owns the Gadget Lab, in October 2002. There had been an explosion in the number of applications for IT embedded in consumer products, from cars to toys to medical devices, and there had been much innovation around e-commerce. "We interviewed 76 companies at the end of the dot-com era, and there was a lot of interesting technology left on the table," says Pat Toole, general manager of ET&S.

Seeking a way to match those technological opportunities with its 20,000 active patents and 40,000 engineers, and propelled by a management mandate to become more of a services company, IBM got into the gadgets business. Some 200 companies have paid it to develop prototypes so far. For the first time, IBM is giving customers access to its core technologies, not just to finished products.

IBM worked with the Mayo Clinic in Rochester, Minn., to design a small magnetic resonance imaging coil that can be used to examine body parts in extreme detail. An injured arm, for example, is inserted into the coil and then the coil and arm are inserted into the tube of an MRI machine. The resulting images recorded by the coil are more detailed than those that can be obtained any other way, says Bruce Kline, Mayo's technology commercialization manager.

Doctor in the House

Why turn to a computer company for a medical device?

"Mayo and IBM are trying to get together on many levels," Kline says. "IBM's win was they learned how to do a medical device. Mayo's win was access to engineers that are good at productization."

IBM is working with four companies to develop devices for wireless medical data collection. Wearable blood pressure, heart rate and EKG monitors — plus the bathroom scale and pillbox — could send real-time medical data by mobile phone to a doctor, a clinic or a pharmaceutical company whose clinical trial of a new drug includes the user of those devices. The devices could work in concert so that a physician receiving, say, adverse blood pressure or heart rate data could see that the patient hadn't taken his medication that day and respond accordingly.

A communications company in Europe wanted more flexibility in pricing cell phones, and it wanted to foster demand for services over its cellular network. In response, IBM designed a cell phone "hub" that contains the phone's battery, its cellular radio and a Bluetooth device. The hub stays in a pocket or purse and communicates with application-specific cell phone modules — which IBM also designed — that contain input and output devices such as keypads, earphones, cameras or minikeyboards.

This arrangement allows the cell phone owner to use the ultralight and cheap user-interface device as an ordinary cell phone. But it also lets the user employ any number of specialized mobile wireless gadgets. For example, IBM worked with Nike Inc. to fit Nike's foot-mounted pedometer with a Bluetooth connection to the cell hub. Now a jogger can automatically send time and distance data to his trainer — which might just be a Web application, not a person — and get back instructions or words of encouragement.

A stack of 27 bricks may be one of the most promising items in the Gadget Lab. Each brick in the prototype storage system contains a microprocessor, eight to 12 disk drives and communications hardware. Each brick can communicate with any other brick at 10Gbit/sec., and the bricks can be stacked to create data storage cubes scalable to petabytes [QuickLink 46885].

An array of these bricks in the lab — a cube that's about 30 inches on each side — can hold as much information as the Library of Congress. It has 10 times the storage density of anything ever made, says Robert Steinbugler, IBM's manager of strategic design. In a few years, one storage administrator using smart bricks should be able to manage a petabyte of storage, about 100 times more than is typical today, according to IBM.

The technology is part of IBM's autonomic computing initiative. "The idea of autonomic is self-healing, or self-managing," Steinbugler says. Smart bricks perform security and recovery operations without human intervention. The system can reconfigure itself in response to and in anticipation of varying conditions and user needs. And when a disk drive fails, users can ignore it. "You don't have to replace a failed drive," says Steinbugler. "It just fails in place. Drives are a commodity; that's why we can let them fail." ⊙ 47425

IBM's lab is working on a wearable blood pressure/heart rate monitor.
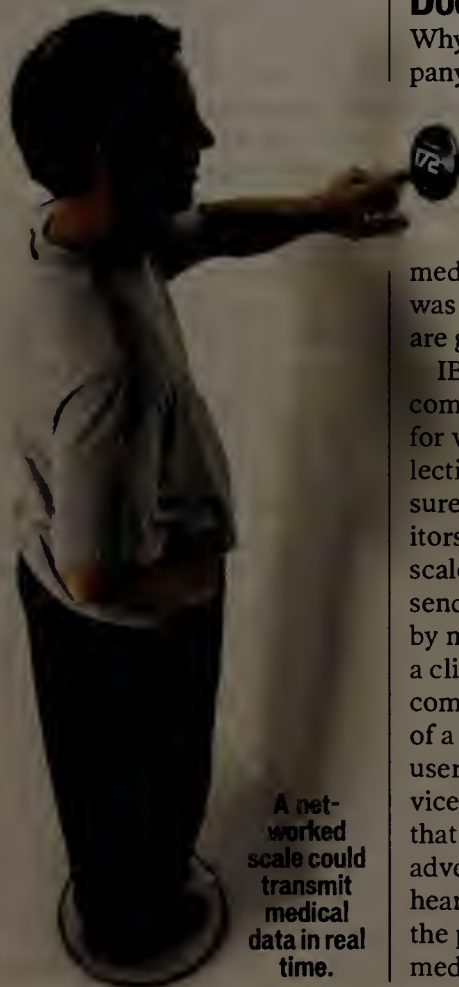
A networked scale could transmit medical data in real time.

This array of bricks can hold as much data as the Library of Congress.

Search FOR A View

CASE STUDY Oil field services provider Weatherford completes a companywide ERP deployment with enterprise search technology for user access. **By Tommy Peterson**

WHEN WEATHERFORD INTERNATIONAL LTD. began deploying an enterprisewide ERP system in 2001, the company wanted to make sure it gained maximum benefit from the massive migration project. Specifically, the oil field products and services company wanted to develop advanced search capabilities that would expose the information in its new J.D. Edwards OneWorld ERP software and the Parametric Technology Corp. (PTC) Windchill product data management (PDM) system installed with it, says Bill Droke, Weatherford's ERP manager. So the company brought in ProFind,

an enterprise version of the Endeca Navigation Engine from Endeca Technologies Inc. in Cambridge, Mass.

Weatherford is a $6 billion corporation that competes with Halliburton Co. and Schlumberger Ltd. It has grown largely through mergers and acquisitions, a process that left it with a patchwork of IT systems across 440 locations in more than 100 countries.

"We identified 60 different systems that people were using to run the business, and a lot of them didn't talk to each other," says Droke.

It had become nearly impossible to

track orders, assets and inventories. Many of the disparate IT systems came from acquired companies that used part-numbering systems that were different from the one Weatherford used.

"We had multiple part numbers for the same item and the same part number for different items in various parts of the company," says Droke. That meant that the sales staff was sometimes unsure of the availability and location of products. And purchasers for Weatherford's manufacturing operations sometimes bought components that were already in stock.

Weatherford needed to cleanse and rationalize data going into its PDM and ERP systems and make the information quickly available to the company.

Weatherford first approached Endeca for tools to help with the indexing and classification necessary for the data transformation and cleansing, and it later selected the vendor to provide the integrated search function.

As the ERP deployment rolls out incrementally, project teams identify products that have had business activity within the past 24 months. Each item is then designated with a part number and classified based on its technical attributes. When two different numbers are associated with parts that have identical technical attributes, one of the numbers is eliminated.

The cleansed and rationalized parts data, along with product structure data for anything Weatherford manufactures, is then inserted into the Windchill system, which provides the engineering staff with control over the information. Windchill then publishes the data to the J.D. Edwards OneWorld system (renamed EnterpriseOne by PeopleSoft Inc.). Since both systems have limited search capabilities, ProFind links to each of them, exposing the data, including technical attributes and legacy part numbers, to users from all departments.

Dave Colley, vice president of manufacturing and global procurement at Weatherford, says ProFind has solved the "inherent data presentation" problems that have arisen from the ERP deployment. "Each business discipline focuses on different attributes relating to a product, and with the Endeca tool, we are able to solve this accessing issue for the entire business by presenting a combined view," he says. "This view includes detailed classification

information for each product without depending on a 'smart number' that is extremely difficult to manage in a global environment."

The initial Endeca integration into the Windchill and OneWorld systems in 2002 took about four months to complete, including the requirements phase, according to Jim Fitzgerald, a senior application developer at Endeca.

"We were working with the people who owned the data sources in the company, defining the logic between [Windchill and OneWorld] and then rolling it out into the Weatherford corporate environment," says Fitzgerald.

Endeca returned to help solve some server configuration and load-balancing problems that cropped up as the ERP project scaled out to various regions. By this past spring, with the deployment progressing but with more to be done in the U.S., Europe and the Asia-Pacific region, 3.3 million items were already indexed and accessible through the search software.

Although interaction with the PDM and ERP systems is largely limited to engineers and IT staff, the Endeca tool has required minimal training and been adopted readily by nontechnical staff.

"I see a large part of its utilization with employees that have minimal day-to-day exposure to [OneWorld], such as management and sales," says Harris Hurst, Weatherford's drilling and well services district manager for the East Venezuela region. "It gives management real-time data to review available inventory and assets ... and sales can accurately respond to a customer equipment request."

On the engineering side, says Droke, Weatherford often gets requests for oil field equipment that must be certified for specific properties such as pressure ratings, temperature ratings and corrosion resistance. What was once a laborious manual search process has been replaced by a single query to ProFind, which returns item numbers that meet the requirements along with links to certification documents in Weatherford's imaging system.

Droke says ROI on the project is difficult to sort out. "The return comes from all the pieces you put in together," he says. "I can say that because of the search technology in place, there are jobs not missed and equipment we didn't purchase because we could see we didn't have to." ● **46736**

At a Glance

COMPANY: Weatherford International Ltd.

HEADQUARTERS: Houston

BUSINESS PROBLEM: Provide widespread user access to information from a corporationwide deployment of a J.D. Edwards ERP system and a PTC Windchill PDM system.

TECHNOLOGY USED: ProFind and Endeca Navigation Engine

BENEFITS: Made key information available to all departments of the company, including nontechnical staff.

Access to Weatherford Data: Search Is Central

Non-J.D. Edwards user: Direct access to PDM and ERP systems data via Endeca interface

J.D. Edwards user: Procurement person via Endeca via OneWorld interface

Endeca Navigation Engine

PTC Windchill (PDM)

J.D. Edwards OneWorld (ERP)
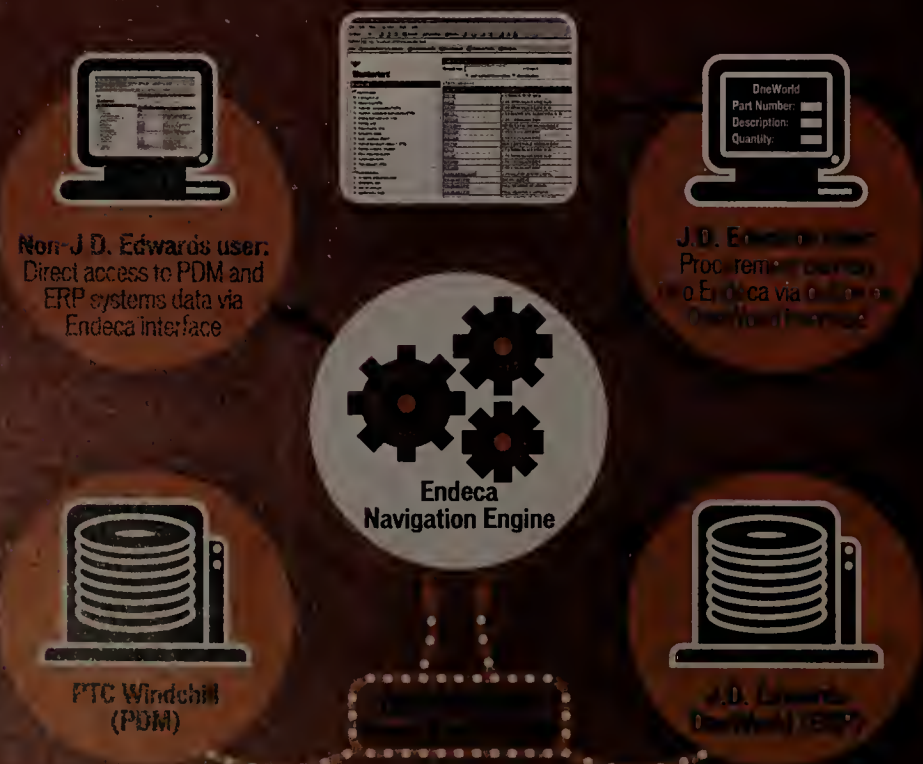
VoiceXML

DEFINITION

Voice Extended Markup Language (VoiceXML) is a scripting language for defining dialogues and specifying the exchange of information between a user and a speech-enabled application.

BY RUSSELL KAY

HTML'S ABILITY to describe layouts and pages was a major factor in the rise of the World Wide Web. But HTML has a fundamental flaw: It assumes a graphical output display on a computer. Five or 10 years ago, that was the natural and obvious thing to do.

But nowadays people want to be able to access the Web when they're away from their desktops, using phones, pagers, handheld devices and even household appliances. While most of these devices have graphical displays, at best those displays are very small, have limited bandwidth, aren't well suited to normal Web browsing and generally don't have keyboards for input or control. In business, many areas of customer support have moved to Web-based

QUICK STUDY

systems, and there's a real need to make those systems accessible from any telephone without the benefit of a computer client or visual display.

In other words, we want to be able to talk to our Web pages and have them talk back to us. This is called voice browsing, and it lets users retrieve information from the Web by means of speech synthesis, prerecorded audio and speech recognition. Voice capability can be added to conventional desktop browsers, and as mobile devices become smaller, voice interaction can provide a more practical alternative to tiny keypads and undersized displays.

The World Wide Web Consortium is working to expand access to the Web to allow people to interact via keypads, spoken commands, prerecord-

ed speech, synthetic speech and music. In 1998, the W3C sponsored a voice browsing workshop. The next year, it formed a working group whose members included AT&T Corp., British Telecommunications PLC, Lucent Technologies Inc., Philips Electronics NV, IBM, Motorola Inc. and Nokia Corp. The group is working on interrelated XML-based languages and standards for developing speech applications. Called the W3C Speech Interface Framework, this platform includes the following:

- **VoiceXML 2.0,** for defining dialogues and specifying the exchange of data between the user and a speech application.
- **VoiceXML 2.1,** a small set of features that have been widely implemented by vendors.
- **Speech Recognition Grammar Specification,** for specifying the structure of user input to a

speech application.

- **Speech Synthesis Markup Language,** for specifying just how synthesized speech is rendered to the user — e.g., the type of voice used and specific pronunciations.
- **Semantic Interpretation for Speech Recognition,** which defines links between grammar rules and application semantics, so that spoken variations of the same element, such as "Coke" and "Coca-Cola," are treated as equivalent.
- **CCXML,** for specifying call control functions.

VoiceXML is the most visible part of this framework, while the other elements are essentially infrastructure. VoiceXML leverages the other specifications for creating dialogues that feature synthesized speech, digitized audio, recognition of spoken and DTMF key (i.e., touch-tone) input, recording of spoken input and telephony. VoiceXML hides many of the complexities of telephony platforms.

VoiceXML has features to control audio output and input, presentation logic, flow, event handling and basic telephony connections. Applications built with VoiceXML can include prerecorded audio material, just as HTML can incorporate existing images in a graphical page.

HTML is oriented toward screen layouts that present multiple objects at the same time. Speech, however, is much more linear — you can hear only one thing at a time — and so VoiceXML has to control the interaction between the user and the application. In almost all cases, the application and user take turns speaking: The application prompts the user, and then the user responds.

Languages like VoiceXML and its predecessors have to support two kinds of markup: one that describes the text according to its structure or content, and another that controls aspects of how speech is to be produced, such as voice pitch and emphasis. ● **47675**

Kay is a Computerworld contributing writer. You can reach him at russkay@charter.net.

Origins of Speech Synthesis

We've paid a lot of attention over the years to speech recognition – getting the computer to hear and understand what we say to it – but much less to how the computer talks back to us via text-to-speech (TTS) synthesis. A number of proprietary systems have been used, beginning in 1961 when Bell Labs researchers programmed an IBM 7094 to sing "Daisy" (an event memorialized in the film *2001: A Space Odyssey*).

TTS got a big boost in 1976 when Ray Kurzweil introduced his Reading Machine, which could scan printed copy and speak it. At the time, we acknowledged the significance of the breakthrough but made bad jokes about the heavy "Swedish chef" accent.

In the intervening three decades, computers have grown far more powerful and we have developed many more tools with which to produce better output.

VoiceXML has its roots in an AT&T Bell Labs project called PhoneWeb, a phone markup language and platform for building both consumer and call-center telephony applications.

Motorola used a similar approach so it could provide mobile users with interactivity and current information. Motorola focused on hands-free access, emphasizing speech recognition rather than touch-tones for input. Motorola based its language on XML and in 1998 announced VoxML.

Another XML-based speech language, Sable, was also introduced in 1998 and built on the Spoken Text Markup Language (1997's STML, based on the 1996 Speech Synthesis Markup Language) and Java Speech Markup Language, also dating from 1997.

– Russell Kay

MICROSOFT'S ALTERNATIVE

Microsoft is backing an alternative to VoiceXML called Speech Application Language Tags:

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Spyware Gets Top Billing

An infection on the CEO's home system leads to a call for new preventive measures.
By Mathias Thurman

THIS WEEK, I was suddenly called into my boss's office for an urgent meeting. From the look on his face, I expected to hear that we had a serious security incident under way. Instead, he asked what our department was doing about spyware.

Apparently, a spyware program had infected our CEO's home computer, so he asked the CIO if we had a plan to deal with adware and spyware. The CIO marched down to a vice president's office to ask the same question. That VP then asked a director, who asked me whether we have any infrastructure to deal with an increase in spyware activity within our company. The short answer is that we don't have any. So now the question is, Why don't we have that infrastructure in place?

It's funny how these sorts of inquiries roll downhill. At a previous job, I once had to bring in several vendors after the CEO read an article about public-key infrastructure. We explained to him that PKI was still in its infancy and would cost several million dollars to implement. The project died quickly after that.

Typically, adware is software that installs a service or program that spawns pop-ups or launches a Web browser that points to a specific Web site's marketing message [QuickLink 45702]. Adware also tracks an individual's surfing habits and sends that information to a third party for analysis and use in marketing campaigns. Spyware is software that monitors a user's activity without his knowledge. In addition to Web surfing, it may also monitor things such as keystrokes.

Spyware and adware are two sides of the same coin. Both enter a computer system when a user opens an attachment or clicks on a Web page that allows a program to be executed on the system without his knowledge. Both make similar modifications to a system, such as changing Windows registry settings, adding services and installing and executing applications.

When I recently experienced pop-up ads on my home system, for example, I was amazed at the number of modifications that had been made to it. I found several applications I didn't recognize in the registry key responsible for starting applications at boot time. All of them turned out to be adware. There are many freeware and commercial products I can use at home to

SECURITY MANAGER'S JOURNAL 🔒

> **Adware and spyware are often difficult to detect until they affect performance.**

identify and remove these applications. For example, I use Patrick Kolla's Spybot — Search & Destroy. The popular program is available for free at *www.safer-networking.org* and is supported by user donations. But neither this nor the other tools I've come across are appropriate for enterprise use. Most lack enterprise-class support, pricing and centralized management features.

Furthermore, while the CEO and I had both experienced spyware problems at home, I wasn't aware of an issue on company machines. I called our help desk manager, who concurred that we haven't had many internal problems with spyware or adware. But that doesn't mean that our desktops are free of this code, and now I need to know for sure. The dilemma is that adware and spyware are often difficult to detect until they affect performance, flood the user with pop-up ads or make the system unstable.

Difficult to Block

As for blocking spyware communications, we don't restrict outbound TCP/IP traffic. Except for certain unauthorized music-sharing applications such as Kazaa, we allow almost all network traffic originating from desktops to leave the company. Many spyware and adware programs send data out, or "call home," by way of HTTP Port 80.

Practically speaking, we can't block all those destination addresses because they change frequently. Although we have an intrusion-detection system (IDS), spyware and adware are so dynamic that it's difficult to use signatures to identify this traffic.

The best way to deal with this type of problem is on the desktop. Several programs can identify the common registry entries, services and applications that might be modified or installed by adware and spyware. The problem is that we have more than 10,000 desktops in dozens of countries, so management of one desktop at a time is unrealistic.

Another option is to install a host-based IDS, which typically includes a period of time in which you record the normal activity of an uninfected system and then mark that as the baseline. Then, when the software detects something outside of normal operations (for example, starting a new service or writing to certain parts of the registry), the IDS generates an alert. But deploying this software requires extensive resources. And if it's not deployed properly, a host-based IDS will generate false positives, preventing users from conducting legitimate business activities or sending users excessive pop-up warning messages.

In addition, a host-based IDS is yet another application that must be managed and maintained. Add it to the plethora of applications you already have — antivirus, desktop firewall, patch management, disk encryption and so on — and you've created a very complex desktop environment with multiple centralized management consoles to maintain.

Don't get me wrong. I'd love to have everything I could install on each employee's desktop. But technology consumes both money and staff resources. There's a place for a host-based IDS, but mostly for important servers, not for 10,000 desktops. But I have to start calling on vendors that claim to have centrally manageable enterprise-class tools for detecting and removing spyware and adware. The first tools are just coming out, but I'd be surprised if there were any mature, scalable systems at this early stage. ▶

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

To find a complete archive of our Security Manager's Journals, go online to
🌐 **computerworld.com/secjournal**

PAUL A. STRASSMANN

CIOs Must Manage What's Left

IF ALL YOUR NEIGHBORS lose their jobs, you call that an economic recession. If you lose your job, you call it a depression. The same reasoning seems to apply to the enormous attention that computer people are suddenly giving to out-

sourcing. The fact is that CFOs have always pushed for outsourcing everything associated with the cost of goods sold. What is different now is that CFOs have shifted their target and placed IT on the top of their list of functions that should be subjected to competitive pricing.

Outsourcing is widely practiced with regard to factory labor and materials supplies, without distinction between domestic or foreign sources. It is labeled as "competitive purchasing," "best value procurement" or "commercial off-the-shelf acquisitions" (in government). After 50 years of abnormal growth in the number of IT jobs, and after a period of above-average increases in compensation for IT people, CFOs are seeking lower overhead expenses. That's where IT is most vulnerable, because most of IT is an overhead burden.

A squeeze on profits necessitates cost-cutting. When it comes to picking where to cut, why not select what has escaped pruning for at least 20 years?

PAUL A. STRASSMANN (r............com) finds that much of the organizational conflict associated with outsourcing reflects a neglect in anticipating the inevitable.

The CFOs — still nursing a grudge for having lost possession of IT — are happy to oblige [QuickLink 41348].

The CFOs understand that corporations already purchase (e.g., outsource) most of their costs, as shown in the pie chart below of median values for over 2,000 U.S. corporations.

Given the high percentage already devoted to purchasing to gain a competitive cost advantage, the current outsourcing initiatives shouldn't come as a surprise. Offshore procurement would be a logical choice, since imports already account for 14% of the gross national product of the U.S.

I have calculated "outsourcing ratios" (e.g., the ratio of purchases to revenues) for over 1,000 global companies. (For a chart showing a diverse selection of firms, see QuickLink a4710.)

As a rule, I find that diversified multinational corporations — already engaged in global commerce — show higher outsourcing ratios than smaller firms. Therefore, one can expect an acceleration in the awarding of outsourcing contracts in $100 million increments. The primary purpose of such contracts is to take over the job of migrating the obsolete client/ server architectures to network-based data-centric designs. As I previously noted in *Computerworld* [QuickLink 40856], such outsourcing would pass on to vendors the technology risks for fixing the creaky and unaffordable

computing infrastructures.

Sensational headlines notwithstanding, the CFOs fully comprehend that IT does matter! IT median costs now equal median corporate profits. They are not a mere 3% of revenues but 13% of overhead (e.g., transaction costs), which is nowadays the principal cause of eroding corporate profits.

In about a quarter of companies, IT constitutes the largest cost center and therefore will get intense attention in budget reviews. In this environment, asking for massive reductions in IT spending will always be a politically popular move — except that IT innovation has now become a strategic necessity. Without injections of new sums of money, we won't be able to free companies from 50 years of emphasis on intracompany information processing and start moving toward a future that mandates global interoperability with vendors and customers.

Whether refocusing your firm's IT infrastructure results in a bleeding amputation or in simple outpatient surgery depends on your information architecture. If you have built up your infrastructures separately for each organization, invested in isolated client/ server farms, depend on desktop-centric applications for too many applications or do not have a companywide data dictionary, you will need to remedy your conditions prior to passing on your IT infrastructure to the outsourcers with the most attractive bids.

The CFO will always show reasons for outsourcing to reduce costs. The job of the CIO after outsourcing more than three quarters of IT spending is to manage risks and preserve those parts of the IT organization that are the essential core competency for safeguarding future prosperity.
🔄 47723

Slicing the Corporate Pie

Purchases

Transaction (SG&A) costs

23%

54%

Cost of goods sold

17%

Profit **3%**

IT costs **3%**
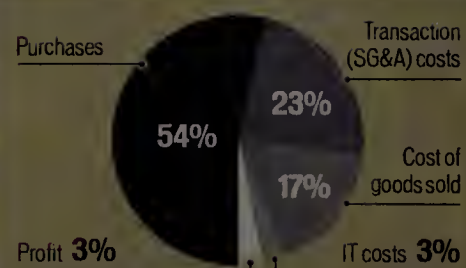
SOURCE STANDARD & POOR'S COMPUSTAT DATABASE

As the flow of mandates continues, CIOs who can integrate corporate compliance efforts will be ahead of the pack. **BY STEVE ULFELDER**

DO YOU BREAK OUT in a cold sweat whenever you hear the phrase *Section 404*? When a co-worker mentions HIPAA, do you race back to your office to figure out the earliest possible date you can retire?

If so, we've got some bad news: The Sarbanes-Oxley Act, the Health Insurance Portability and Accountability Act, the USA Patriot Act and other regulations of their ilk are just the beginning. For the foreseeable future, you can expect a steady flow of industry, state, federal and international mandates that codify the way businesses gather, store, manage and report information.

Naturally, IT will play a key role in compliance. But will that role be one of leadership or mere execution? Can IT create systems and processes that allow the corporation to easily comply with any new regulation it encounters, regardless of that regulation's specifics and origin? These are key questions, and millions of dollars ride on the answers.

Some doubt such preparedness is feasible. "Predicting the next big regulation is like trying to predict the weather," says Thomas Watson, information security project lead at West Haven, Conn.-based Bayer Pharmaceutical. "Who knows what's going to come down next?" Others, however, believe it's both possible and necessary to create a compliance management infrastructure and environment that can make future regulations less onerous to follow. Here's a look at the benefits of compliance management, the hurdles and the steps companies can take to get started.

JOYCE HESSELBERTH

BUILDING A
Compliance
Framework

MANAGEMENT

Keys to Compliance

AIIM International recently published a book on IT compliance that attempts to lay out a step-by-step program for businesses. *Information Nation: Seven Keys to Information Management Compliance,* by Randolph Kahn and Barclay T. Blair, is filled with checklists, examples and key questions that IT must ask. Here are the seven keys as outlined in the book:

1. **Good policies and procedures**
2. **Executive-level program responsibility**
3. **Proper delegation of program roles and components**
4. **Program communication and training**
5. **Auditing and monitoring to measure program compliance**
6. **Effective and consistent program enforcement**
7. **Continuous program improvement**

More information is available at
www.aiim.org.

Making Lemonade

The most persuasive reason to institute a compliance management culture is to reduce the cost of meeting individual regulations. A look at the price tag for Sarbanes-Oxley drives home the point. In a January 2004 survey of 321 companies, industry group Financial Executives International found that for large companies, the average cost of compliance with Section 404 — Management Assessment of Internal Controls — was $4.6 million, including 35,000 hours of internal staff time, $1.3 million for consulting and software and $1.5 million in new audit fees.

Business Roundtable, an association of CEOs of U.S. companies, conducted another survey in July 2003 in which it polled 150 CEOs at large companies. Half said their compliance costs would range from $1 million to $5 million; some estimates topped $10 million.

The good news is that the cost of Sarbanes-Oxley compliance, along with that of HIPAA, can be used as a basis for meeting future regulations. According to Stamford, Conn.-based Gartner Inc., public companies that adopt a comprehensive compliance management architecture will spend 50% less per year than those that don't.

"In many organizations, the first reaction to a new regulation is to create a 'tiger team' " to address the issues, says Gartner analyst Lane Leskela. "But if you've got these teams for three or more regulations, the redundancy makes no sense."

A compliance strategy can also provide a competitive edge. If your business can respond quickly to new regulations while others in your industry remain stuck in tiger-team mode, the advantage goes to you.

Spearheading

While it's tough to anticipate future regulations, it's a sure bet that data-gathering will be a critical component of compliance. That's why it makes sense for CIOs to lead the charge.

"When business leaders look at compliance, they look at the letter of the law, not repeatability," says John Hagerty, an analyst at Boston-based AMR Research Inc. "IT can say, 'Here's how we can automate so it's not such a pain next time.' " Technologists can lead the compliance effort because they can ignore departmental and line-of-business barriers and comprehend the big picture regarding data and data flow.

It's also important to lead externally by leaning on software vendors to more fully develop their offerings so that there are fewer security vulnerabilities and less reliance on patches. Experts say today's premature commercial software rollouts and subsequent frequent patching make it difficult for companies to vouch for the integrity of their systems. Where data integrity and security are concerned, "IT must say to suppliers that it cannot live with unsafe technology," says Alan Paller, director of research at the SANS Institute in Bethesda, Md. "Today, there's not sufficient pressure; IT groups are allowing vendors to sell them systems full of holes."

Elements

So how do you create systems with an eye toward compliance? Gradually, for starters; nobody expects IT groups to toss their infrastructures overboard and start from scratch. John Mancini, president of industry group AIIM International in Silver Spring, Md., says one digestible approach is to keep in mind a regulation that you know is pending. Then, when you upgrade a technology component that will be affected by that regulation, shop accordingly. For example, a business that's heavily affected by

> ## "You can't buy a compliance architecture; they don't exist.
> **John Hagerty,** analyst, AMR Research Inc.

HIPAA should consider that regulation when exploring access-control offerings.

AMR's Hagerty agrees. "You can't buy a compliance architecture; they don't exist," he says. "So you look at hot buttons for your company to see what you must handle first, and use that to decide what architecture pieces you must put in place first."

Myriad technologies play a role in compliance support:

- **Business process management applications,** for both reporting and risk forecasting.
- **Enterprise resource planning,** to ensure that controls are in place.
- **Search and retrieval,** for information discovery and communications monitoring.
- **Storage (software and hardware),** to protect and retain data.
- **Security,** to control access, protect data and ensure that systems are auditable.
- **Content management,** to control access and handle document compliance efforts.
- **Records management and e-mail archiving,** to meet retention regulations.
- **Data and application integration,** to make unstructured data usable and ensure the data's reliability.
- **Business process automation,** to monitor key processes and define relationships among data.

In addition, vendors have begun to roll out general-purpose compliance management applications (as opposed to applications focused on a single reg-

ulation). Axentis Inc., IBM, Documentum and FileNet Corp. have fielded products, and many others are expected to follow suit.

Challenges

IT managers who attempt to raise company consciousness about compliance shouldn't necessarily expect a hero's welcome. According to Gartner's Leskela, too many corporations still approach regulations the way they did when Sarbanes-Oxley became an issue: "Businesses decided this was an issue for finance, and finance said to IT, 'You'll get involved when we say you'll get involved,' " he says.

Leskela adds that in interviews with many of the largest, best-managed companies in the U.S., Gartner found a dispiriting number of process management silos preventing legal, financial audit and IT audit groups from working together. "Organizations just don't connect senior management of business divisions to [corporate] legal, IT and finance groups," he says.

Making these connections is the first challenge, and a prickly one at that. Volunteering to lead the company's compliance management program is sure to be viewed by some as a power grab. Nevertheless, it's worth the effort. **○ 47455**

Ulfelder is a Computerworld *contributing writer in Southboro, Mass. Contact him at sulfelder@charter.net.*

WANTED: IT INVOLVEMENT

Some corporate auditors are lamenting IT staffers' reluctance to help with Section 404 compliance:

QuickLink 47728
www.computerworld.com

Technologies Involved in Compliance

	(illegible)	(illegible) SARBANES-OXLEY	(illegible) HIPAA	(illegible) PATRIOT ACT	(illegible)	(illegible)	(illegible)	(illegible)
Financial compliance and BPM/analytical apps	●					●		
ERP	●					●		
Business intelligence and data warehousing						●		
Content/document management and search	●	●	●	●	●	●	●	●
Data/app integration					●	●		
Business process automation	●	●			●	●		
Records management and e-mail archiving				●	●		●	●
Storage SW/HW	●	●		●	●	●	●	
Security	●	●	●	●	●	●	●	●

SHAREWARE Grows Up

A friendly group of Midwestern CIOs is saving money by pooling resources and software. BY CJ RHOADS

N JULY 2001, Andrew Black and Scott R. Lien were having a drink after work and commiserating about the high cost of software and intellectual property development. Lien, then vice president of information services for customer-facing systems at Best Buy Inc., had just been burned by a vendor that decided to take its software in a different direction — leaving Lien high and dry for future updates. He and Black, CIO at Jostens Inc., knew from years of experience that they were both purchasing the same software and coding the same integration functions. They decided there had to be a better way.

In yet another after-work conversation, they enlisted the help of Elmer Baldwin, CEO of consulting firm Born Information Services Inc. The plan: Form a member organization to share resources such as software, utilities and IT planning tools.

"Initially," Baldwin said, "I thought they were nuts!" But he took on the project, began to investigate and soon was hearing a litany of complaints from CIOs about the cost of duplicated development efforts.

Meanwhile, Baldwin, Black and Lien met monthly. They hired Minneapolis-based Dorsey & Whitney LLP to work through the legal issues, consulted with prospective members and developed a business charter. Last fall, they formalized the structure as Avalanche Technology Corp., a for-profit Minneapolis-based cooperative, and hired Jay Hansen, formerly general manager of Asia-Pacific operations at Retek Inc., as CEO.

Companies pay $30,000 a year for an Avalanche membership, which entitles them to use any of the intellectual property that has been donated to the cooperative by other members. There are currently four members, with four more in various stages of approval, and about 30 intellectual property assets are being legally cleared for use. "Our goal is to grow by at least 10 companies within the next year," Hansen says.

Members log onto www.avalanche. coop, where they can review and download intellectual property or upload property they wish to donate.

Intellectual property assets can be integration applets, application add-ons, best-practice documentation, templates, project plans, user interfaces, software coding or schemas. "Anything that makes it easier to implement software," Baldwin says. "The financial models project a 20% to 40% decrease in the total cost of ownership of software at member companies," he adds.

Lien explains the Avalanche mission: "We want to take the friction out of collaboration," he says. "We are all under tremendous cost pressure to save money, and through Avalanche we can save each other money."

"Software cooperatives are a great idea," says Bob Lewis, president of IT Catalysts Inc., a consulting firm in Eden Prairie, Minn. "I'm surprised that it took so long to happen. It really legitimizes the open-source model."

Beyond Open-Source

Lien says the co-op model is similar to that of open-source but takes the concept further. "This is the next level beyond open-source," he explains. "With open-source, there is too much risk. You are stuck maintaining and supporting anything you develop. That can get resource-intensive."

With Avalanche, Lien says, the co-op becomes responsible for the asset and also ensures that there's a clear title so member companies can't be sued later. "It is great for the donating companies," he says. "The larger the installation base, the lower the cost of ongoing maintenance."

John Schmidt, vice president of integration at Best Buy, echoes that idea. "It's easy to informally collaborate with just one or two developers; companies do it all the time. But beyond that, you begin to run into risks," he says. For example, Best Buy was using an open-source framework available at www.openadaptor.org, but the original developers stopped supporting it, leaving Schmidt hanging. Later, when Best Buy developed its own framework for coding integration adapters, the company donated it to Avalanche.

The charter members of Avalanche are Jostens, a provider of affiliation products such as yearbooks; ePredix Inc., an employee assessment firm,

where Lien is now CIO; Born Information Services; and Integral Business Solutions. All four are based in the Minneapolis area. As technology service providers, Born and Integral are obligated to donate services in addition to paying the membership fee.

Hansen says that competition among members shouldn't be an issue because the shared assets don't bring competitive advantage. "We fully expect competing companies to join and share," he says. But he acknowledges that getting members to really collaborate is a challenge.

Baldwin agrees. "We are looking for more than just money," he says. "We want member companies to get involved, to participate." They hope member companies will donate intellectual property, cooperate in adapting it for other companies, help troubleshoot problems and form subgroups to develop needed niche software for the library.

As of June, a discussion board on the Avalanche site had been discontinued because of underuse, but Schmidt is still optimistic. "Six months from now, the site will be very active," he says. "The idea hasn't been proven yet. It's a leap of faith. But I think it will work." ● **47449**

Rhoads is a freelance writer in the Philadelphia area. Contact her at CJRhoads@ETMAssociates.com.

A discussion of software development resource issues over an after-work drink led Scott R. Lien (left) and Andrew Black to form the for-profit Avalanche Technology cooperative.

AVALANCHE GETS ROLLING

Avalanche CEO Jay Hansen talks about the formation of the organization:

QuickLink 47453
www.computerworld.com

ThinkTank

BRAIN FOOD FOR IT EXECUTIVES

CIOs to Manage Buildings, Too?

If you've ever relocated a data center or moved a headquarters, you know how much the IT group and the facilities management group need to work together. The two departments must coordinate myriad details about electrical power, heating and cooling systems, security and telecommunications. Otherwise, you'll have insufficient cooling for those red-hot blade servers, or telecommunications circuits that are provisioned too late for the move.

To improve coordination, a few companies are starting to combine IT and facilities management functions in a single group, a merger that could become mainstream in five to 10 years, says Joshua Aaron, president of consulting firm Business Technology Partners Inc. in New York. "Facilities managers need to know a lot more about technology than they used to. And technology managers need to know a lot more about facilities than they used to," Aaron says. "Technology is now so woven into the fabric of office space that I don't think these things can be [separate] anymore."

That's especially true in the "smart office" of the future, Aaron says. Integrated building systems will recognize that a particular employee has entered the building (via biometric access controls), provide just-in-time lighting along his path, boot up his PC and set the customized temperature in his office. Those capabilities exist today, Aaron says, but they won't be widely affordable for seven to 12 years.

– Mitch Betts

Best Bits

The most useful parts of recent business and IT management books

THE BOOK: The Future of Work, by Thomas W. Malone (Harvard Business School Press, 2004).
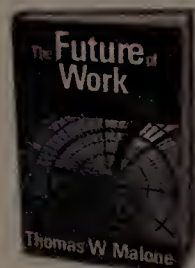
You know how open-source software is created by a widely dispersed bunch of highly talented people who come and go but at some point focus on this particular software project?

That's the future of work, according to MIT organizational guru Thomas Malone. Projects will be handled by "flexible webs of small companies," or ad hoc teams of internal experts, or electronically connected freelancers. Malone calls the latter group *e-lancers*, and already there's an online marketplace where buyers can receive bids from service contractors (*www.elance.com*). Afterward, the team will disband and regroup in different combinations for other projects.

This is all made possible by cheaper communications and collaborative IT, of course, but it will require new ways of managing: more coordination, less command-and-control. And Malone says we'll need to establish *guilds* — reminiscent of the craft associations of the Middle Ages — to make sure e-lancers have health care benefits, financial security, training, recognition and social interaction with their peers.
— *Mitch Betts*

Things to Ponder

■ **Less is more.** World-class IT organizations spend 18% less than average ones and operate with 36% fewer employees while still providing higher levels of strategic value to their companies, according to a benchmarking study by The Hackett Group in Atlanta, a unit of Answerthink Inc.

■ **What's the next big thing in IT?** Merrill Lynch & Co. asked 100 CIOs that question and the most common answer was "don't know," followed by security and wireless/RFID. Obviously there's no killer app on the horizon, but Merrill Lynch analysts say that *sensors* may be a big deal in a couple of years [QuickLink 44641].

■ **Dirty data.** Companies are basing important decisions on bad information, says Gartner Inc., which estimates that more than 25% of the critical data within Fortune 1,000 businesses is inaccurate or incomplete. ◑ **47651**

GOT ANY BRIGHT IDEAS? *Send them to pitches@computerworld.com.*

The IT Economy

■ The IT department has learned to postpone purchases of computer printers, since printers are not much of a priority, says a recent survey by Merrill Lynch & Co. analysts. The survey of 115 CIOs found that 41% were reluctant to buy printers, though it's a relatively low-priority task.

■ IT outsourcing spending will grow 9% this year, while spending on IT consultants and IT staff will grow at 3% and 2%, according to a Forrester Research survey of 115 CIOs.

■ The combined IT spending power of New York and New Jersey is second to that of California, according to IDC.

U.S. IT Spending Forecast

2004 SHARE

Packaged software will make up only a fifth of IT spending . . .

- 43.5%
- 32.1%
- 24.4%
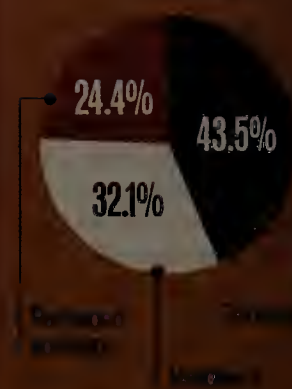
2004 GROWTH

. . . but it will be the fastest-growing segment.

(bar chart: Services, Hardware, Packaged software)

Career Watch

Richard LeFave

TITLE: CIO and senior vice president

COMPANY: Nextel Communications Inc.

LeFave, a *Computerworld* Premier 100 IT Leader, is this month's guest columnist. He answers readers' questions about breaking into management, the outlook for older IT workers and pursuing an advanced degree. If you have a question you'd like to pose to one of our Premier 100 IT Leaders, send it to ____der computerworld com and watch for this column each month online and in print.

Even though I have more than 20 years of support, development and project management training and experience, and a bachelor's degree, I haven't been able to break into management. Should I simply focus on improving my technical skills, or insist on joining management? If moving into management is something you want to do, I think your technical leadership skills could support a move. The issue sometimes is making your management aware of what you want to do. Start with HR and take the time to promote your career design with them so they can be a supporter.

I'm 58 years old and have been in IT since 1969. I've been a Unix systems administrator for 10 years and a mainframe systems programmer for 20 years. **Is there a tendency among hiring managers today to look at anyone over 55 as obsolete – even though we have current skills?** The power of the IT profession is that it gives people the ability to bridge age and gender gaps; the need for technically competent leaders provides a level playing field. Mobility and skill sets play an important role in being considered for the right job for you. Broadening your skills always helps, and adding capabilities in project management, benchmarking analysis and balanced scorecard techniques are very valuable adjuncts to a solid Unix background. Adding Linux expertise broadens technical skill sets as well.

With so many jobs being outsourced, what are the opportunities for IT professionals of the future? The areas that will continue to grow at a fast rate include local and wide-area networks, database administration, systems administration and business systems analysis.

I am an undergraduate student in computer information systems. I am considering graduate school. Which would be more beneficial: a master's degree in business administration or in information systems management? I think that an undergraduate degree in computer science coupled with a few years of work experience makes a solid launching platform for either graduate degree. An MBA will provide a valuable experience in business operations and insight into where IT can best be deployed. You can customize either degree with courses that cross over, thereby getting the best of both worlds. Getting some work experience first will give you insight into which degree makes the most sense for you.

Stateside Pay Slide Tied to Offshore Outsourcing

BASE AND PREMIUM PAY is trending downward for U.S. IT workers whose jobs are most susceptible to offshore outsourcing, according to new research conducted by Foote Partners LLC in New Caanan, Conn. Pay for both noncertified application programming and enterprise application development skills declined 2% in the first quarter of 2004 and between 19% and 20% over the past two years. Meanwhile, certified application development skills have not fared much better. They have lost nearly 15% of their value over the same two-year period. "This is premium skills pay that has traditionally been used to retain and motivate workers," says David Foote, president and chief research officer of Foote Partners. "As more programming work is transferred offshore or at least directed away from IT full-timers, premium pay becomes unnecessary."

Getting Colder

The following certifications have lost between 17% and 36% of their premium bonus pay in the past year:

- GIAC Certified Firewall Analyst
- GIAC Certified Incident Handler
- Siebel Certified Consultant
- Sun Certified Java Programmer
- Microsoft Certified Systems Engineer + Internet
- Microsoft Certified Professional + Internet

Still Hot

Strong demand can be expected for the following groups of certified and noncertified skills over the next year:

- Security
- Linux
- XML variants/Web services
- VoIP
- Wireless
- Enterprise project management
- Web-enabled analytics, management applications

Base: 42,000 North American and European IT workers

SOURCE: FOOTE PARTNERS LLC, JUNE 2004

Tall Tales

THE REASON FOR LEAVING a previous job is the information that executive job seekers most frequently fabricate, according to a recent survey of 300 executive recruiters at Korn/Ferry International, a Los Angeles-based executive search firm that serves Fortune 500 companies. Other areas where white-collar job hunters are most likely to stretch the truth are their accomplishments and their job responsibilities. "Sometimes, candidates are uncomfortable about having been laid off or let go from a previous job," says Robert Damon, president of Korn/Ferry North America. "But rather than obfuscate or alter the reasons for leaving, it's always best to be straightforward about the situation. The reality is that downsizing and restructuring have lost much of their stigma and are becoming more generally accepted by employers."

Nonetheless, potential employers remain diligent about performing background checks on managerial and executive job candidates, Korn/Ferry found. Education and employment verification and criminal/arrest history are the top three types of checks that companies request. ○ 47655

– Julia King

PAUL GLEN

The Wrong Stuff

NOW THAT IT DEPARTMENTS are starting to do just a little recruiting, it's time to think about how to hire the best and brightest people. Despite having had a few years when they could be really choosy, hiring managers seem to have lost sight of how to pick great employees.

We've all seen job postings with statements like, "Must meet all requirements below to be considered. Otherwise, don't waste our time by applying." What follows is invariably a list of required experience that would elude even the most energetic and accomplished centenarian. Usually the list includes a long string of ill-considered, mutually incompatible skill sets and temperaments. Statements like, "Must have a successful record as a sales hunter, a seller of large-scale software solutions to senior executives and a J2EE programmer, with a minimum of 25 years of experience," seem all too common.

I imagine some junior HR person fresh out of college sitting in a windowless cubicle sifting through piles of résumés. "Hmm. Here's one. Oops. Only 24 years of Java. Reject. Next. Steve Jobs; that name sounds familiar. Oh, didn't finish college. Next."

I'm not suggesting that hiring managers shouldn't be choosy now that they have the chance, but they should use the opportunity to choose based on meaningful criteria. Too often, it seems, these attempts to be selective are based on a few myths that lead to poor decisions.

Myth 1: Past Experience Equals Future Success

At the heart of absurd selection criteria is the assumption that an applicant's previous experience doing exactly the same job implies future success. But there are a number of problems with hiring someone to re-create a previous performance.

People frequently try to repeat past success by doing things exactly the same way as before, failing to recognize the uniqueness of the new situation. In fact, if someone has done a job before and been wildly successful, he's unlikely to reproduce the results. Early success doesn't lead to learning. Failure is a much better teacher.

Also, people get bored doing the same things over and over again and don't engage completely with the job.

A much better rule to follow when hiring would be "past drive for success implies future drive for success." The desire to be effective is much more enduring and important than some specific experience. You can see it in a progression of increasing responsibility, but mostly it comes through in the interviews.

Myth 2: Specialization Equals Productivity

This myth has deep roots in the business community. Ever since studies of scientific management were conducted at the turn of the last century, specialization has been considered a bedrock of productivity. The more specialized someone is, the more productive he must be. Obviously, this belief has served us well over the past 100 years or so, helping to multiply the productivity of physical labor by a factor of more than 50.

But just because this assumption has proved true for improving the productivity of physical labor, that doesn't necessarily mean that it will work the same way for improving the productivity of knowledge work.

A better assumption would be that every organization and project needs a blend of both deep specialists and broad generalists. Hiring a bunch of specialists more often results in internal competition and posturing than in outstanding productivity. In the right environment, people with varying perspectives find the most efficient and creative solutions to the problems at hand.

Myth 3: You Can Do Only One Thing Well

This myth assumes that each of us is entitled to only one primary skill. If someone has pursued a career writing mystery novels, he clearly can't be much of a programmer.

For me, one of the great privileges of being in IT has been working with just these sorts of talented polymaths. I've worked alongside people who started their careers as opera singers, concert pianists, high school teachers, mathematicians, physicists, historians, salespeople, factory workers and psychologists. They all bring varied perspectives from their other careers, enriching our work experiences and the quality of our technical products.

If we allow these people to be forced out of the industry by checklist recruiting, our projects and work lives will be poorer for it. ◐ 47608

PAUL GLEN is an IT management consultant in Los Angeles and the author of the award-winning book *Leading Geeks: How to Manage and Lead the People Who Deliver Technology* (Jossey-Bass Pfeiffer, 2003; www.leadinggeeks.com). He can be reached at info@c2-consulting.com.

Customer Engineer - (Southfield, MI) Design car audio systems. Interface w/cust on tech issues/spec dvlp. Analyze product rqmts & perform elec & s/w integration using OEM protocols. Maintain engrg docs using PVCS Tracker. Participate in subsystem level testing in vehicle labs. Bach's deg in Engrg, Elec & Comm Engrg, Elec & Comp Engrg reqd + 5 yrs prog exp in specialty field. Snd resume to PASC, 775 Highway 74th South, Peachtree City, GA 30269, Attn: R Henkel, AP.

Sr. Financial Planning Analyst. MBA w/concentration in Finance + 4 yrs rel. fin'l planning exp, incl exp w/capital forecasting & planning of $20M or above; std costing; Oracle Financial Analyzer; 2 yrs exp with standard costing. CPA certification reqd. Send resumes to Margo Massey, 2510 North Dodge, IA City, IA 52240.

Systems Analysts needed. Seeking candidates possessing BS or equivalent and/or relevant work experience. Part of the req. rel. exp. must include 1 year working with SQL Server and VC++. Duties include: Analyze and evaluate requirements; devise system architecture; debug and test programs. Work with the following: Visual C++, C#, VB.Net, Rational Rose, SQL Server and Winrunner. Mail resume, references and salary requirements to: Infotek, P.O. Box 835050, Richardson, TX 75083.

Sr. Network Systems and Data Communications Analyst wanted by company engaged in financial services. Requires B.S. in Comp. Sci. plus 2 yrs. exper. including network design/implementation, network security, expertise in SQL Server replication in distributed environments, strong Exchange Server administration experience, Intel/Dialogic computer telephony development and Visual Studio .Net. Reply to H.R. Dept., Economic Advantages Corp., 71 Central St., Woodstock, VT 05091.

Sys Admin wanted by Computer Service Center, Inc, Meriden CT. Requires BS in Comp Sci or related field, min 2 yrs exp. Job duties include: setup & maintain user accts & permissions for networks, Win NT/2000/2003 servers, MS Exchange 5.5/2003, MS SQL Server 2000; support Internal LAN network, field office networks & Cisco PIX firewalls; maintain documentation for ell related IT systems, including network diagrams, procedures, system configuration detail, incident logs, etc. Send resume to jobs@cschome.com or Fax to 201-291-1508.

Universal Electronics is looking for a Sr. Software Eng in Advanced Technologies to develop software systems for wireless communication devices. MSCS/CE + 3 yr exp reqd. Resumes w/job code SSE0108 to HR@UEIC.com or by fax to (714) 820-1223. Universal Electronics, 6101 Gateway Dr., Cypress, CA 90630-4841

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IT PROFESSIONALS
Manager

(Glen Mills, Pennsylvania and other locations through the U.S.). Involved in the design & implementation of custom, technology enabled business solutions. Function as an integrator between business needs & technology solutions. Responsibilities include defining systems strategy, developing systems requirements, designing and prototyping technical solutions, testing, training, defining support procedures, and implementation. Manage & guide overall scope of engagements and anticipate client needs. Manage all aspects of design build & testing process, review & ensure high quality project deliverables. Work with senior client executives & project teams to guide the design & implementation process, manage & limit risks, & secure approvals for exceptions & their mitigations. Develop & integrate designs across multiple modules, processes, applications & technologies. Integrate & manage build activities across configuration, coding & infrastructure teams. Involved in configuration of User Interface Layer, Business Objects Layer & Data Objects Layer using software development kits, such as Siebel Tools. Configure custom product models & set up product configuration within the chosen package. Assist Consultants with design details relating to configuration of application using package tools, i.e. Siebel Tools, & lead infrastructure discussions to decide on database sizing for Oracle or SQL server back end enablers. Lead data modeling design efforts aimed at developing an analytical & reporting system using such tools as Siebel Analytics for data warehousing & Business Objects for reporting & analytical processing that suit clients business requirements. Involved in process automation using mechanisms like Siebel Workflow Manager. Involved in application & integration architecture using package vendor recommended standards to meet client needs & infrastructure requirements; define integration objects & keys to enforce data synchronization; & design custom staging areas for data.

WAGE: $100,894.75/year
Hours worked: Monday-Friday 9:00am-5:00pm

MINIMUM REQUIREMENTS:
Bachelor's degree or equivalent in Computer Science, Engineering (any type), Math, Business Administration or Information Systems + 3 years exp. in the job offered or 3 years exp. as a Senior Consultant, Consultant or Systems Analyst. Related experience must include at least 1 year using datawarehousing tools (Siebel Analytics & Business Objects) Siebel tools, Oracle databases, SQL server, and Workflow Manager. Employer will accept 5 years of related experience in lieu of a Bachelor's degree.

Please send your resume, referencing Job Order Number WEB431335 to the: Philadelphia Careerlink, FLC Unit, 235 W Chelten Ave., Philadelphia, PA 19144. EOE.

Computer Professionals

We have openings for the following positions to work at the client site throughout the United States. Send Resumes to: Webllent Technology Inc, 259 A Main St. Suite #5 Nashua, NH 03060.

Jave Programmer Analyst: Design and develop software applications using Java, JDBC, J2EE Websphere, Tomcat and XML. Perform object-oriented methodologies and problem diagnosis.

Visual Basic Programmer Analyst: Design, develop and test software applications using SQL, Server, VB, ASP, .NET and Crystal Reports. Involved in trouble shooting, query optimization, testing and production support.

Mainframe Programmer Analyst: Analyzing the business needs, writing the technical specifications and testing the application using Cobol, DB2, CICS, FileAld and MVS/ESA. Must be able to Performance Tune, Troubleshoot and production support.

Oracle Programmer Analyst: Design, develop and customize oracle applications using Oracle 11i, Forms, Reports, stored procedures and PL/SQL. Solving system issues and performance tuning.

UNIX Systems Engineer: This position involves the analysis and proposal of system hardware, software, and system solutions for centralized HP-UX, AIX and NT enterprise-class computing platforms, running software applications in an Oracle environment.

COMPUTER/SECURITY

PricewaterhouseCoopers LLP's GRMS practice has opportunities available for experienced professionals in the area of Oracle Controls Security. Positions require 3 to 5 yrs related exp. and bachelor's degree in MIS, Finance, or Accounting/Business. Applicants must have experience performing control/security reviews of Oracle applications; experience in EDP audit, Consulting or ERP implementation exp; and CPA and/or CISA certification. Job site/location: Florham, NJ. Interested candidates please reference job code 5BWTX5 & fax resumes to Gladys Logsdon at 813-329-3919. No phone calls please. Employer will only consider applicants authorized to work for any employer in the U.S.

RedPrairie Corporation, world leader in provision of logistics execution systems, seeks the following: Managers (Technical) for supply chain execution application services at Cary, NC, office, to assist in leading in technical aspects of customer implementation & to mentor/provide administrative lead for group of Software Engineers. Require Bachelor's in Computer Science, MIS, Engineering or related field (equivalent combination education/experience or equivalent experience considered) plus 3 yrs experience in computer-related occupation, including leadership role in project implementing warehouse management or supply chain software, & experience in automated warehouse/distribution systems industry. Senior Manager for supply chain execution application services at Cary, NC, office, with responsibility for major portion of customer TMS products, to interface with Internal groups to enable delivery of products that meet customer's need, & to serve as primary point of contact for customers. Require Bachelor's Computer Science, MIS, Engineering or related field (equivalent combination education/experience or equivalent experience considered) plus 5 yrs experience in computer-related occupation, including experience in logistics & supply chain consulting or related field, TMS functionality, & management of logistics projects. Interested candidates should e-mail, fax or mail a resume and cover letter, including code CW1 with salary requirements to:
RedPrairie Corporation
Attn: Organizational
Development
20700 Swenson Drive
Waukesha, WI 53186
Fax: 262-317-2638
Email:Recruiter@redprairie.com

EPCON International, Inc. requires a Software Development Engineer with Masters in Computer Science and 1 year experience to develop process engineering/simulation software products in house. Knowledge of Visual Basic, Visual C++, Fortran, scientific computing and Microsoft development environments essential. Please send resumes to Director of Software Development, 16225 Park Ten Place, Suite 600, Houston, TX 77084.

IT PROFESSIONALS
Manager, Customer Relationship Management

(Glen Mills, Pennsylvania and other locations through the U.S.). Responsible for management end direction of technical/development team(s) component for large and/or complex Siebel projects. Develop, monitor and control project plans. Identify and resolve team and inter-team dependencies and issues. Involving areas of a full-life cycle Siebel implementation. Document Siebel processes and requirements for implementation using CRM and Siebel best practices. Perform fit-gap analysis of the requirements and translate processes end requirements into functional and technical designs. Develop presentations and conduct business reviews of Siebel designs/prototypes to gain consensus end track and resolve issues and change requests pertaining to the technical/development team(s). Create technical development standards, review work product deliverables for Siebel technical/development team(s) component for quality. Manage the builds between environments (development, testing, production) end understand the different components that need to be migrated and the methods/ steps required for migration of each component. Develop end manage relationships with pier level clients and provide technical expertise. Monitor and evaluate team performance. Contribute to complex proposal development efforts with potential clients for the technical/development components of a CRM implementation.

WAGE: $100,895/year
Hours worked: Monday-Friday 9:00am-5:00pm

MINIMUM REQUIREMENTS:
Bachelor's degree or equivalent in Computer Science, Engineering (any type), Math, Business Administration, Information Systems or Finance + 6 years exp. in the job offered or 6 years exp. as a Manager, Senior Consultant, Consultant or Analyst. Related experience must include at least 3 years of managing large-scale CRM implementation projects, utilizing Siebel, across multiple modules and industry verticals. Employer will deem foreign educational credentials evaluated by an evaluation service to be the equivalent of a U.S. degree.

Please send your resume, referencing Job Order Number WEB431127 to the: Philadelphia Careerlink, FLC Unit, 235 W Chelten Ave., Philadelphia, PA 19144. EOE.

IT PROFESSIONALS
Senior Consultant

(Glen Mills, PA and other locations throughout the United States). Design and implement decision support systems, fraud detection and other rule based processing systems utilizing Business Rules Engine (BRE) based applications to enable clients to capitalize on market opportunities, re-engineer business processes and implement new processes through component-based development, easy-to-maintain decision tables, dynamic rules, and a sophisticated inference engine that manages and interprets large rule sets. Lead the process of gathering, consolidating, and reconciling data from a variety of different sources to implement and develop OLAP (Online Analytical Processing) Reports. Provide a variety of informational services utilizing, predictive "data mining", end business support services, to deliver critical data to key decision makers using Business Objects. Create and develop custom applications using PL/SQL procedures with Oracle as the back-end and create logical and physical data models and star schemas using ERWIN. Create automated testing scripts for Mercury Interactive Load Runner/Win Runner to support Load Testing and lead the system integration and performance testing, develop testing strategy, plan/track tests, and conduct user acceptance testing and defect triage using Mercury Interactive Test Director.

The wage offered is $81,700/year. The work schedule is Monday-Friday 9:00am-5:00pm. The minimum requirements are as follows: Bachelor's degree or equivalent in Computer Science, Business Administration, Information Systems, Engineering (any), or Mathematics plus 4 years experience in the job offered or 4 years experience as a Senior Consultant, Team Lead, Consultant or Systems Analyst. Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited institution of higher education in the United States. Related experience must also include at least six months of implementation of Business Rules Engine (BRE) based applications; implementation of OLAP (Online Analytical Processing) reports using Business Objects; creation of custom applications using PL/SQL and Oracle as the back-end; creation of star schemas using ERWIN; and creation of automated testing scripts for Mercury Interactive Load Runner/Win Runner.

Please send your resume, referencing Job Order Number WEB 428199 to the: PA CareerLink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

Database Analysts needed. Seeking qual. candidates possessing BS or equiv. and/or rel. work exp. Part of the req. rel. work exp. must include 2 yrs working w/ Coldfusion, ASP, & HTML. Duties include: Manage, organize, & optimize databases; Gather req.; Define funtional capabilities of databases & develop security spec. Work with SQL, HTML, XML, ASP, & Coldfusion. Send res., ref. & sal. req. to BCS Inc., 5550 Sterrett Pl., #306, Columbia, MD 21044.

Computer Research Scientist

Ph.D. in CS + 2 yrs. exp. required to create system network solutions utilizing video encoding in MANET and Bluetooth Scatternets with host architectures of multi-threaded caching and cut-through networking. Salary $88K. Location, Torrance, CA. Send resume to cspence@broadatacom.com.

IT Professionals sought for dsgn, dvlpmt, testing & implmtn of server side s/ware & d/base systems. MS/BS in Comp Sci, Eng, or related field w/exp in TCP/IP, SQL, JAVA, C/C++, .NET, UNIX, QA. Applicants must be willing to relocate/travel to various unanticipated locations in US. Mail resume to HR, K2 Software Group, LLC, 1111 E. Lincoln Way, Ste 114, Cheyenne, WY 82001 or email: wasif@k2softwaregroup.com.

Radiant Soft Sol, Inc., a S/ware Consulting Comp. has permanent positions open for Computer Software Professionals with a B.S. or equivalent degree in Arlington Heights, IL, Cheyenne, WY & other unanticipated locations in the US:
(i) Software Engineers, Database Analysts & Network Analysts with 3 yrs. exp.
(ii) Business/Systems/Programmer/QA Analysts with 2 yrs exp. Respond by resume to HR, 855 E. Golf Road, #1125, Arlington Heights, IL 60005.

CW070504E/W/MW.2

IT PROFESSIONALS
Senior Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.) Lead custom design and development teams for building complex enterprise applications in the public sector industry utilizing custom development tools including Java, Java2 Platform Enterprise Edition (J2EE), Enterprise Java Beans (EJB), Visual Basic (VB), Message Queue Series (MQ), C++, Rational Rose and Relational Databases including Oracle, DB2, Sybase ASE, testing tools like Mercury and Compuware and eBusiness. Job responsibilities include Technical Architecture using Enterprise Application Server IBM Websphere and technology integration. Map the client's business processes, organization and technology to new technology solutions. Provide potential gap resolution alternatives. Create designs for complex technical requirements (gap analysis, infrastructure, interfaces, reports, enhancements and conversions). Manage code development and lead teams of architects, developers and analysts. Execute complex infrastructure build activities. Participate in the development of test plans, test scripts, test cases and acceptance criteria. Manage components of engagements and develop work plans.

The wage offered is $75,780 per year. The work schedule is Monday-Friday, 9:00 am to 5:00 pm. The minimum requirements are as follows: *Bachelor's degree or equivalent in Computer Science, Math, Business Administration, Engineering (any) or Information Systems + 2 years and 6 months of experience in the job offered or 2 years and 6 months of experience as a Senior Consultant, Systems Engineer or Senior Systems Engineer. Related experience must include Technical Architecture and technology integration utilizing Enterprise Application Server IBM Websphere, Java, J2EE, EJB, VB, MQ, C++, Rational Rose, Relational Databases (Oracle, DB2 and Sybase ASE), Testing Tools (Mercury and Compuware), eBusiness delivery and one year of experience must be in Public Sector Industry (Courts, Corrections and Integrated Justice processes). *Employer will regard a foreign degree to be equivalent to a U.S. Bachelor's degree as determined by an accredited educational evaluation service.

Please send your resume, referencing Job Order Number **WEB431274** to the: PA CareerLink, FLC Unit, 235 West Chelten Avenue., Philadelphia, PA 19144. EOE.

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Programmer - Position for Programmer. Responsible for providing application development tasks (requirements, design, coding and testing) of enhancements to WEB based customer service application (WES) on time and within budget. Will also debug program errors and production discrepancies, accommodating the IS deliverable schedule and application installation commitments utilizing JAVA, HTML and Java Script, servlets. 40 hours per week. Hours are 8:00 a.m. to 5:00 p.m., Monday through Friday. Must have Bachelor's Degree in Mechanical Engineering, Information Technology or equivalent. Two years experience necessary. Pay is $51,205 per year. Job Order No. FL-2529798. Job located in Tampa, Fl. Send resume to: Agency for Workforce Innovation, P.O. Box 10869, Tallahassee, Fl. 32302-0869.

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Technical Analyst System Development: research, evaluate, implement and coordinate changes, maintenance end technical support of systems or applications. Compile and write documentation to describe program development, performs research, identifies program problems and develops solutions. Code, test, debug, document end maintain application programs. Resolves problems by evaluating processes end implementing necessary corrective measures Implement and document modifications to software were eppllcations currently in use. Req. BS or equivelent in CS or MIS with proficiency in COBOL, SAS, end JCL. 40 hr/wk, 8-5. Fax resume to 870-365-4966.

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BCC USA Inc. - Portland, Maine needs experienced Programmer Analysts having a Bachelors degree with minimum two years of progressive work experience in SAP, QTP, WinRunner, Oracle, SQL, PL/SQL, Java, J2EE and HTML. Competitive salary and benefits. M-F, 40 hours/week. Please mail your resume to BCC USA Inc., HR Department, 650 Main Street, Suite 201, South Portland, ME 04106.

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SYSTEMS ADMINISTRATOR to administer, develop and maintain business computer systems to manage comprehensive accounting functions essential to company's clients operations using C, C++, C#, Java, HTML, SQL and Jbuilder on Windows NT and UNIX platforms; Design and develop new website for the company in order to provide technical service online and transfer data via the internet to the main office; Network accounting computer systems at clients' offices to facilitate communication between clients and main office, and provide technical support and training to clients. Require: B.S. degree in Computer Science, Business Admin., or a closely related field; Must have a demonstrated ability to perform the stated duties gained through academic coursework/previous work experience. Competitive salary offered. Apply by resume to: Karim Kaisani, Comprehensive Business Accounting, Inc., 6123-A Oakbrook Pkwy., Norcross, GA 30093; Attn: Job SC.

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Programmer Analyst (San Carlos, CA and client sites nationally) Corio seeks a Sr. Enterprise Wide Programmer Analyst in the area of PeopleSoft Consulting. This position is charged with providing functional support and PeopleSoft consulting for HRMS /Payroll clients in the areas of HRMS, Benefits, Time & Labor, Payroll, CRM, Workforce Analytics and EPM. S/he will review code, data, and application configuration to identify problem source efficiently utilizing PeopleTools (Application Designer, Peoplecode). Position requires a Bachelor's Degree or equivalent in Computer Science, Information Systems or Engineering (any) and a minimum of 4 years of relevant professional experience to include Payroll, Benefits, HRMS and Time & Labor utilizing People Tools (Application Designer, Peoplecode). Please send resumes to Aimee Romeo, Corio, 959 Skyway, Suite 100, San Carlos, CA 94070. EOE. Please reference Code 333VI.

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Software Engineer - Systems/Architect, Temple Terrace, FL, to be responsible for leadership and technical expertise in conceptualizing and creating technical solutions based on research and investigation to solve complex problems related to the design and deployment of system enhancements and new products; design software applications using C, C++, Java, Java Script, CORBA, UML (unified modeling language), UNIX, AIX (advanced IBM UNIX), DB2 (database 2), HTML and web server technologies; research and prepare architectural designs, standards and migration plans for future business enhancements; finalize code and handle unit testing for complex technical issues. Requires Bachelors in Computer Engineering or Computer Science, plus either 3 yrs exp in job offered or 3 yrs exp in systems engineering using Java, C++, CORBA, AIX, DB2 and UML. Salary $78,800/yr, Mon-Fri, 8AM-5PM, 40 hrs/wk. Send resume to Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869, refer to J.O. # FL-2531087.

Software Engineer (San Carlos, CA and client sites nationally) Corio seeks a Member Software Development Engineer in the area of application development with Java, C++ and J2EE technologies. This position is charged with developing through hands-on coding of web-based applications based on Model-View-Controller Architecture (such as Struts). S/he will develop and maintain Java and C++ applications based on object-oriented concepts that tie various disparate sub-applications through Single Sign-On mechanisms. Position requires a Bachelor's Degree or equivalent in Computer Science, Information Systems or Engineering (any) and a minimum of 2 years of relevant professional experience to include designing and implementing web-based applications using J2EE and Java technologies, object oriented programming concepts and SQL. Please send resumes to Aimee Romeo, Corio, 959 Skyway, Suite 100, San Carlos, CA 94070. EOE. Please reference Code 444CC.

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PROGRAMMER/ANALYST to analyze, design, develop, test, implement and maintain complex enterprise web-based application software using object oriented programming, Java, J2EE, EJB, JSP, Servlet, JDBC, XML, RDBMS, Struts, WSAD and WAS on UNIX and Windows platforms. Require: B.S. degree (or equivalent) in Computer Science/Info. Systems, an Engineering discipline, or a closely related field with 2 yrs. of exp in the job offered; Each three years of progressively responsible work experience in the field will be considered equivalent to one year of college education. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Sophie Mookerji, Software Paradigms International, Inc., 3901 Roswell Rd, Ste 134, Marietta, GA 30062; Attn: Job SG.

SOFTWARE ENGINEER to design, develop, test and maintain web-based applications in a client/server distributed computing environment using Java, J2EE, C++, Oracle, WebLogic Application Server, Apache Server, XML, EJB, JSP and Struts on Windows, UNIX and SUN Solaris platforms. Require: M.S. degree in Computer Science, an Engineering discipline, or a closely related field with 1 yr of exp in the job offered or as a Programmer; Experience gained before or after earning the M.S. degree will be accepted. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Ravi Kandimalla, Everest Computers Inc., 875 Old Roswell Road, Ste E-400, Roswell, GA 30076; Attn: Job HS.

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Computer - Software Engineer, Boca Raton, FL. Develop and design system manager components, test, install, configure, deploy, debug and monitor components, databases and series servers, coordinate system components, liaise with other professionals developing other components, provide technical information and guidance regarding product specifics. Utilize JMS, TCP/IP, MQ, JMX & XML. Bachelor's Degree or foreign equivalent degree in Computer Science, Computer Engineering or Management Information Systems and two (2) years of experience in the job offered or in the related occupation of Programmer. $80,137 per year. 40 hours per week. 8:00 am-5:00 pm. Please send resumes to Job Order number FL-2527530, Workforce Program Support, P.O. Box 10869, Tallahassee, FL 32302-0869.

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JavaOne

"I've never even evaluated Sun tools," said Rick Davis, a Ravenswood, W.Va.-based senior systems analyst at Pechiney Rolled Products LLC, which uses IBM's WebSphere application server and, like most WebSphere sites, the development tool designed for it. Although Davis expressed curiosity about the new offerings Sun promoted last week, he added, "I'm curious about a lot of things, but I don't have time for them."

A random poll of more than a dozen attendees at JavaOne found that none use Sun commercial tools. A few said they use Sun's open-source NetBeans integrated development environment (IDE). Sun pre- viewed a 4.0 version of Net- Beans last week.

Daniel Vela, a San Antonio- based software engineer at Sierra Nevada Corp., said he has no need for Sun's com- mercial tools because Net- Beans is more than adequate. He said several colleagues also use NetBeans, and two of them have opted for the open- source Eclipse IDE that IBM created and this year turned over to an independent non- profit corporation to manage.

An architect at a big invest- ment bank who asked not to be named said he uses Eclipse, NetBeans and IntelliJ. He said he abandoned Borland's JBuilder because of the ex- pense and opted for the cheap- er IntelliJ. He said he tends to favor Eclipse over NetBeans because it's "snappier."

The architect expressed re- spect for Sun as the "only vi- able steward of Java." But, he added, "it's difficult to see how they reconcile the invest- ment they're making in Java. I find it hard to work out how Sun will make any money off the Java platform."

Sun is being creative with bundled options and subscrip- tion pricing, but the growing popularity of free open-source options such as Eclipse and NetBeans threatens commer- cial offerings. Thomas Murphy, an analyst at Meta Group Inc., said more corporations will take a mixed approach, using commercial and open-source tools to cut costs. A J2EE tools suite can cost $5,000 to $10,000 per developer, he said.

"People are pushing back against that," Murphy said.

Some development teams, however, still want the add- ons that a commercial tool provides. Joseph Saab, a De- troit-based development man- ager at Daimler Chrysler AG, said the automaker needs the Enterprise JavaBeans support, test environment and enter- prise application integration modelers in IBM's WebSphere Studio Application Developer.

Developers expressed vary- ing levels of interest in Java Stu- dio Creator, the Microsoft-like drag-and-drop tool that comes free with a $99 annual Sun de- veloper network subscription. Todd Reeser, a manager of ap- plication development at Choice Hotels International in Phoenix, said his group will evaluate Creator, even though he has heard some say "it's a toy." His group uses Eclipse. "It's open-source, it's free, and it's an excellent IDE," he said.

Christopher Randall, a Sea- side, Calif.-based software en- gineer at Northrop Grumman Corp., said he typically has found Sun's new tools to be too slow, but he was impressed when testing Creator in labs at JavaOne. Whether he will actu- ally use it is another matter. He said he doesn't use an IDE.

"When you use an IDE, you always have to learn some set of steps that may or may not be applicable to what you're do- ing," he said. Creator also has another strike against it. "I gen- erally don't like programming with drag-and-drop," he said.

But Mark Driver, an analyst at Gartner Inc., said ease of use and rapid application develop- ment tools represent hard- ware-centric Sun's last chance to have an impact in the tools business, since there's no leader in that area. "This is a market for them to lose, and they have lost it," Driver said. "They have a long tradition of shooting themselves in the foot with anything that has to do with software strategy."

Murphy said that in order to make strides in tools, Sun will have to establish more of a presence with its application server. "You have to have the combination," he said.

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Gosling Discusses Java Tools Woes

James Gosling, the father of Java, is now chief technology of- ficer for Sun's developer prod- ucts group. He discussed the company's difficulties in the commercial tools space last week with *Computerworld*.

Few developers use Sun's tools. How do you feel about that? Until recently, our tools haven't been as interesting as they should have been. With NetBeans 3.6, we have a release that has crisp performance and a really good feature set. . . . NetBeans has been out as an open-source project for like four years, but it wasn't until a year and a half ago that it really got energy put behind it. And Creator is really the first product we've launched that has broad ap- peal, because it is targeted at the Visual Basic developer – the sort of person who [doesn't] want to spend all of their time thinking about the guts of writing code.

So Creator and NetBeans 3.6 will start to change the situa- tion? Yeah. And the 4.0 release of NetBeans is very close to be- ing ready. And it's lovely.

What's so great in the new version? We've put a lot of effort into cleaning up the user experi- ence, making the workflow a lot smoother. We've had huge, huge pushes on performance to make it sprightly. The NetBeans team tended to be fo- cused on academic purity. Getting them to be a little more blue-collar was a challenge. But they've really gotten the religion. And now they've put a lot of effort into polishing the details.

What's in store for the future of Java Studio Creator? You can drag and drop components and build these apps beautifully, and subsequent versions of Cre- ator are going to broaden that scope. The next version of Cre- ator, for instance, isn't going to be limited to generating HTML as the output but [will] be able to build rich clients. We'd been hop- ing to be able to put down all that this year, but it wasn't quite ready.

What has changed at Sun to cause this push in tools. Was it Jonathan Schwartz deciding he wants a tools business? Some of it was with Jonathan. Jonathan has just been a breath of fresh air. Part of it was, if you wind back the clock five or six years, that we tried to foster an external ISV community of peo- ple doing interesting tools. . . .

But the reality of the tool busi- ness is that the economic models are horrible. Microsoft set the list price of tools so low that it's al- most impossible for an indepen- dent company that's focused on tools to survive. So you've seen this incredible winnowing of the tool market. There's essentially only one left – Borland. And it's pretty shaky. And the developer community has gotten addicted to this world where they spend less on tools than they spend on lattes.

How do you make money if so many people say that free tools such as Eclipse and Net- Beans are good enough? There actually is a market where people are paying, and that's usually the more specialized tools. The way that NetBeans is architected, it's not so much a tool as a tool envi- ronment. We've all released these little higher-level tools that are built as plug-ins to it. So Cre- ator is really just an extension to NetBeans, and Java Studio En- terprise is an extension to Net- Beans. The mobility stack is an extension to NetBeans.

Is it your charge to make a lot of money on tools? For us, the real goal is to make it so that the software ecosystem is as healthy as possible. We don't have to be fabulously cash-positive. We just have to be not fabulously cash- negative, because these tools are enormous. They're tremen- dous engineering efforts.

– Carol Sliwa

FRANK HAYES ▪ FRANKLY SPEAKING

Excuses, Excuses

I T'S INCREDIBLE — THAT'S THE ONLY WORD FOR IT. In May, the Justice Department said it couldn't copy what's supposed to be public information in one of its databases because "implementing such a request risks a crash that cannot be fixed and could result in a major data loss, which would be devastating. In addition to running the risk of data loss, this is a new feature request which would be costly and take a considerable amount of time to implement."

Yes, this Justice Department bureaucrat actually said that copying a database could destroy the data and produce an unfixable crash. *And* that it would be costly and take time.

And we've been worried about Sarbanes-Oxley. Silly us.

Details of this database problem are sketchy. All we know for sure is what's in a letter to the Center for Public Integrity, a Washington watchdog group. In the letter, the Justice Department denies the group's request for a copy of the government's database of foreign lobbyist activity under the Freedom of Information Act.

The database exists, and it's supposed to be publicly available. In fact, Justice is legally required to generate a report from it for Congress twice a year. But the most recent report was for the second half of 2002.

Since then, the database has been undergoing a "technology upgrade," according to the letter. As a result, the database can't be copied until December without risking a devastating data loss and a crash that can't be fixed.

What could possibly be better news to overworked, deadline-pressed IT shops? The Justice Department officially believes in databases that can be destroyed *just by being copied.*

And Justice also officially believes that's a perfectly good excuse for failing to comply with an information disclosure law.

So, if we can't manage to meet the deadlines or generate the reports required by Sarbanes-Oxley and other new laws and regulations that require access to databases, we know we'll get a sympathetic hearing at Justice — right? Well, *won't* we?

And there are a few other things we'd like to know. Such as:

▪ Who is this brilliant contractor that leaves an organization unable to perform tasks it's legally required to do for between six months and two years?

▪ If we hire this contractor for our Sarbanes-Oxley overhauls and our e-mail and instant messaging repository projects, will we be able to use the same copying-the-data-could-destroy-it excuse successfully?

▪ Will our users believe us when we tell them accessing the data they need will destroy it, so they'll have to make do without it? OK, scratch that one — we already know the answer.

▪ Will our CEOs accept that this is a new federal standard for data-intensive IT projects?

▪ Since Attorney General John Ashcroft will be two years behind in filing required reports by the time the database is working again, can we get him to file a friend-of-the-court brief when the Securities and Exchange Commission or New York Attorney General Eliot Spitzer comes after us for not filing *our* reports?

▪ How about just writing us an excuse note?

▪ Is this copying-destroys-it feature available for digital rights management systems?

▪ If we can't hire the contractor or buy the technology, can we at least see the résumé of the IT department staffer who came up with the phrase "a crash that cannot be fixed"?

▪ How could anyone know that copying the data may cause "a crash that cannot be fixed" unless ... uh-oh. ...

▪ Somebody *did* back up that database at some point, right?

They must have answers to these questions somewhere at the Justice Department. Maybe even in a database. Now if we can just get someone to make a copy for us. ...

○ 47901

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